

Initial Study and Proposed Mitigated Negative Declaration for the
Deer Creek Irrigation District
Deer Creek Flow Enhancement Program



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SECTION 1.0 INTRODUCTION

1.1 Introduction and Regulatory Guidance

This document is an Initial Study with supporting environmental discussion and analysis that provides justification for a Mitigated Negative Declaration (MND) pursuant to the California Environmental Quality Act (CEQA) for the Deer Creek Irrigation District's Deer Creek Flow Enhancement Project (proposed project).

The Initial Study (IS) is a preliminary analysis prepared by the Deer Creek Irrigation District (DCID), acting as the CEQA Lead Agency, to determine whether the proposed project may have a significant effect on the environment pursuant to CEQA. If the lead agency finds substantial evidence that any aspect of the project, either individually or cumulatively, may have a significant effect on the environment that cannot be mitigated, regardless of whether the overall effect of the project is adverse or beneficial, the Lead Agency is required to prepare an Environmental Impact Report (EIR), use a previously prepared EIR, or prepare a subsequent EIR. If the Lead Agency finds no substantial evidence that the project or any of its aspects may cause a significant impact on the environment with mitigation, a Negative Declaration (ND) or MND shall be prepared with a written statement describing the reasons why the proposed project would not have a significant effect on the environment, and therefore, why it does not require the preparation of an EIR (CEQA Guidelines Section 15063 and 15070).

This MND has been prepared in accordance with the CEQA, Public Resources Code Section 21000 *et seq.*, and the State CEQA Guidelines Title 14 California Code of Regulations (CCR) Section 15000 *et seq.*

1.2 Lead Agency

The Lead Agency is the public agency with primary responsibility over a proposed project. Where two or more public agencies will be involved with a project, CEQA Guidelines Section 15051 provides criteria for identifying the Lead Agency. In accordance with CEQA Guidelines Section 15051(a), "If the project will be carried out by a public agency, that agency shall be the Lead Agency even if the project would be located within the jurisdiction of another public agency." In addition, Section 15051(d) states, "Where the provisions of subdivisions (a), (b), and (c) leave two or more public agencies with a substantial claim to the Lead Agency, the public agencies may by agreement designate an agency as the Lead Agency."

DCID recognizes the need for a long-term solution to the fish transportation issues in Deer Creek and has continued to work with the Department of Water Resources (DWR), Deer Creek Watershed Conservancy (DCWC), Tehama County, the California Department of Fish and Game (DFG), and National Marine Fisheries Service (NMFS) to develop a long-term agreement for a Deer Creek Flow Enhancement Program. DCID has been determined to be the Lead Agency for this project and CEQA analysis for the following reasons:

- DCID has adjudicated rights to divert Deer Creek surface water for irrigation,
- Wells would be installed and operated to provide DCID with a supplemental agricultural water supply,
- DCID shall hold all right, title and interest to any new wells, well housing, monitoring equipment and other appurtenances associated with the wells,
- DCID would be responsible for obtaining groundwater extraction permits.

1.3 Responsible Agencies

“Responsible Agency” means a public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared a Negative Declaration or EIR (CEQA Guidelines Section 15381). The decision-making body of each Responsible Agency shall consider the Lead Agency’s environmental document, in this case a Mitigated Negative Declaration, prior to acting upon or approving the project. Each Responsible Agency shall certify that its decision-making body reviewed and considered the information contained in the Negative Declaration on the project (CEQA Guidelines Section 15050(b)). Responsible Agencies include the California Department of Water Resources, California Department of Fish and Game, and Tehama County.

1.4 Purpose and Document Organization

The purpose of this Initial Study is to determine if the proposed project may have a significant effect on the environment (CEQA Guidelines Section 15063). As a result of the Initial Study, it has been determined that the project would not have a significant impact on the environment and a Mitigated Negative Declaration is proposed.

This document is divided into the following sections:

Section 1.0 – Introduction

This section provides an introduction and describes the purpose and organization of this document.

Section 2.0 – Project Description

This section provides background information to the proposed project and a detailed description of the proposed project.

Section 3.0 – Initial Study Checklist

For each of the environmental subject areas, this section evaluates and discusses a range of impacts classified as either: no impact, less than significant impact, less than significant with mitigation incorporated, or potentially significant. Because a Mitigated Negative Declaration is proposed, all determinations for environmental significance are either no impact, less than significant, or less than significant with incorporation of mitigation.

Section 4.0 – References

This section provides a list of resources and references used to complete the Initial Study Checklist and corresponding environmental analysis. This section also identifies where copies of these documents can be found.

Section 5.0 – List of Preparers

This section identifies staff and consultants responsible for the preparation of this document.

SECTION 2.0 PROJECT DESCRIPTION

2.1 Executive Summary

2.1.1 Purpose and Need of Proposed Project

Declining populations of several anadromous fish species led to the 1999 state and federal listing of spring-run Chinook salmon (*Oncorhynchus tshawytscha*) as a threatened species, the 2000 federal listing of steelhead trout (*Oncorhynchus mykiss*) as a threatened species, and the 1999 listing of the fall-run and late-fall run Chinook salmon as a state species of special concern and federal species of concern.

Deer Creek represents one of the California's largest undammed watersheds in the Sacramento River Basin. Several unique habitat features within Deer Creek make it an important resource for anadromous fish in the Sacramento Valley, particularly spring-run Chinook salmon and steelhead trout. In a 1989 Study conducted by the California Resources Agency entitled "Upper Sacramento River Fisheries and Riparian Habitat Management Plan," it was determined that Deer Creek is one of only a few waterways in the Central Valley that continues to support a native population of wild spring-run Chinook salmon (Resources Agency, 1989). In 1995, the California Department of Fish and Game published a report, "Restoring Central Valley Streams: A Plan for Action," which concluded that Deer Creek has the greatest potential of all Sacramento Valley streams for increasing naturally spawning populations of steelhead trout and spring-run Chinook salmon (CDFG, 1995). Therefore, Deer Creek is considered an important resource for the recovery of anadromous fish in the Sacramento River Basin.

However, despite Deer Creek's potential, due in part to naturally occurring low flows and diversions by Deer Creek Irrigation District (DCID or District) and Stanford Vina Ranch Irrigation Company (SVRIC), the upstream migration of spring-run Chinook salmon adults or downstream migration of juvenile spring-run Chinook salmon may be impeded or blocked during April, May, June and October.

Over the years, voluntary actions by water right holders/irrigation water diverters on Deer Creek have provided for pulse water flows during critical periods, demonstrating the willingness of local water users to adjust water management practices to achieve ecosystem benefits. Increasing Deer Creek flows during critical periods of fish passage has been identified as a primary need by the DCID (DCID, 2005).

2.1.2 Conceptual Framework for the Deer Creek Flow Enhancement Program

In an effort to provide local assistance to the Deer Creek water right holders, the California Department of Water Resources (DWR) has developed a Conceptual Framework for a Deer Creek Flow Enhancement Program (DCFEP). This framework is designed to fulfill the water needs of local agricultural and domestic water users, while achieving the fisheries water flow objectives in Deer Creek. The framework has four components that are designed to work together to provide the water to achieve targeted fish flows (DCID, 2005).

1. Efficiency improvements to the DCID and SVRIC distribution systems
2. Supplemental water supply development (proposed project)
3. Compensation for DCID and SVRIC
4. Adaptive management and monitoring programs

2.1.3 Overview of the Proposed Project - Memorandum of Agreement

The proposed project is a component of the Conceptual Framework for the DCFEP. The project is the implementation of Phase One of the Memorandum of Agreement (Agreement) between DCID, Northern Region DWR, and California Department of Fish and Game (DFG) for the construction, operation, maintenance and monitoring of a flow enhancement program on Deer Creek (Appendix A). Phase One of DWR's Conceptual Framework for the DCFEP is a water exchange project intended to provide salmonid passage flows for adult spawners and out-migrant young in Deer Creek. Specifically, Phase One includes:

- Bypassing 10 cfs of surface water from Deer Creek during critical migration periods
- Installation of two water supply wells or retrofit of two existing wells for irrigation purposes
- Deer Creek Annual Monitoring Program (DCAMP)

The Agreement provides for the installation of two new groundwater agricultural water supply wells and/or the refurbishment of two existing wells to extract up to 10 cfs of groundwater for irrigation purposes during critical migration periods. The installation of the wells would enable irrigators to switch from using stream flow to groundwater, thus leaving, or “bypassing,” water in Deer Creek during critical spring (April – June) and fall (October – November) migration periods. Maintaining in-stream flows during these critical periods would allow fish to reach areas upstream of the Stanford Vina Diversion Dam in Deer Creek. Ultimately, the 10-year Agreement and flow enhancement program would improve access by salmonids to and from approximately 25 miles of Deer Creek upstream from the diversion dam (USDI, 2008).

The proposed project also includes a Deer Creek Annual Monitoring Program (DCAMP). Components of the DCAMP include the Groundwater Monitoring and Management Guidelines (Guidelines) and the Deer Creek Fish Passage Assessment Plan. The DCAMP provides groundwater level criteria, water quality criteria, and reporting requirements. The Fish Passage Assessment Plan monitors fish passage conditions over a range of water year types to determine the timing and effectiveness of the DCFEP operations. The Plan also focuses on determining the need for pulse flows, riffle modifications, water temperature standards, and reporting requirements.

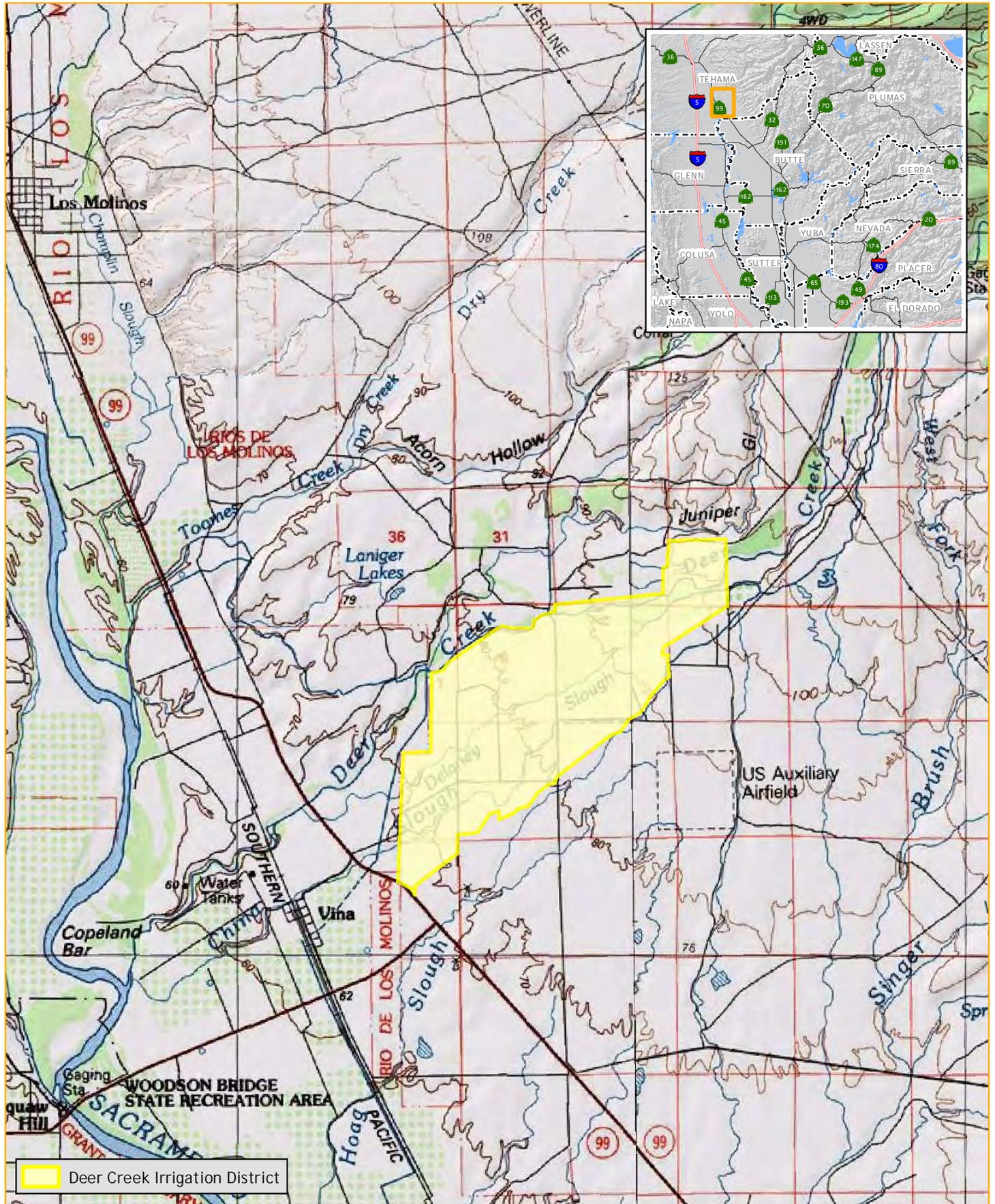
2.2 Project Location

The DCID is located in southeastern Tehama County, approximately 20 miles north of the City of Chico in Butte County and 22 miles south of the City of Red Bluff and 2 miles east of the community of Vina in Tehama County, **Figure 1, Vicinity Map**. Deer Creek drains portions of the Sierra Nevada Mountains and is a tributary to the Sacramento River.

The proposed project is located south of Deer Creek in Section 33 of Township 25 North, Range 1 West MDB&M, Richardson Springs NW Quadrangle and Sections 5, 6, 7, and 8 of Township 24 N, Range 1 West, MDB&M, Vina Quadrangle USGS topographic maps. Access to properties within the District boundaries is provided by State Route 99, Leininger Road and Reed Orchard Road, **Figure 2, Boundary Map**.

2.3 Deer Creek Irrigation District (DCID)

DCID has a water service area of approximately 2,200 acres, and delivers both surface and groundwater water to irrigate 1,900 acres of agricultural lands within the District. Most of the irrigated lands in the District are in orchard production (58 percent) including almonds, walnuts and prunes, with the remainder in either pasture (37 percent) or annual grain crops (5 percent).



Deer Creek Irrigation District

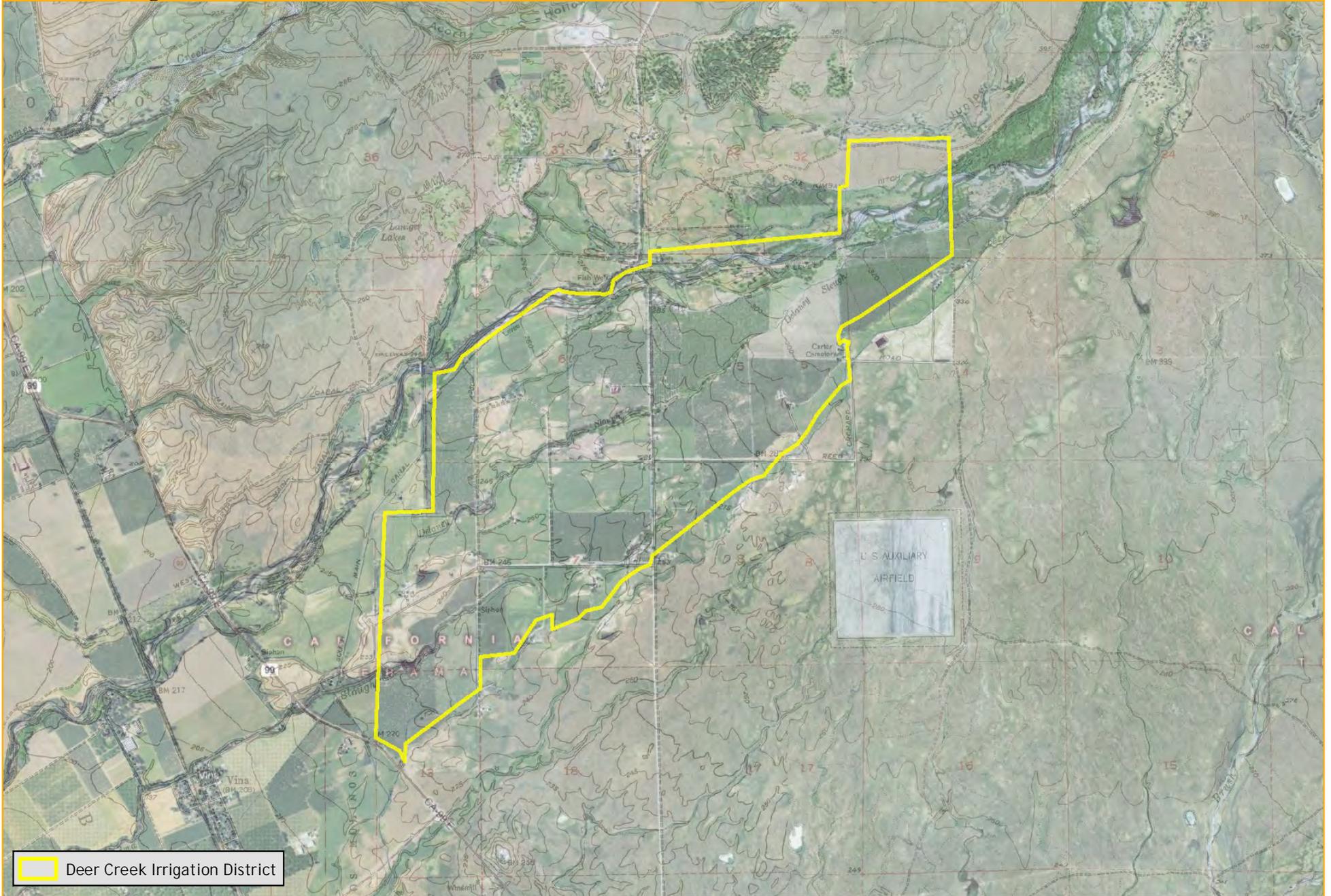
Map shows Chico and Red Bluff USGS 15' Quads.
Map Date: January 12, 2010

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Figure 1

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Map shows Vina and Richardson Springs NW USGS 7.5' Quads.
Map Date: January 12, 2010

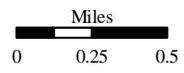


Figure 2

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As a result of several court actions in the 1920s, DCID has the right to divert 33 percent of Deer Creek's flow for use within its service area. The District supplies about 6,600 acre-feet (AF) of water annually, including 5,400 AF of surface water diverted from Deer Creek, and 1,200 AF from groundwater. **Figure 3, Deer Creek Diversion Facilities.**

Surface water is diverted from Deer Creek at the DCID Diversion Dam, which is located approximately 10 miles upstream of the confluence with the Sacramento River. The DCID Diversion Dam is an old concrete structure that has vertical I-beams that constitute check board slots. Each spring, DCID installs the I-beams and check boards and removes them each fall before winter rains and run-off occur.

Water diverted at the DCID Main Diversion Dam is directed into the District's Main Canal, which begins on the south side of Deer Creek. Flow diverted into the Main Canal is measured approximately ¼ mile downstream of the Main Diversion Dam by a parshall flume constructed by DWR.

From the DCID Main Diversion Dam, the Main Canal conveys water for approximately three miles, without turnouts, until it reaches a point referred to as the Main Canal "Y." At the "Y," the Main Canal divides into the North Main Canal and South Main Canal. The North Main Canal extends westward parallel to Deer Creek. The South Main Canal runs west and south for a distance of approximately four miles. Most of DCID's canals are lined with concrete.

2.4 Historic Deer Creek Water Resource Issues and Water Management Efforts

As stated previously, Deer Creek represents one of the State's largest undammed watersheds. Several unique habitat features within Deer Creek make it a very important resource for anadromous fish in the Sacramento Valley. Studies conducted in 1988 found that native fish comprise 95 percent of the fish populations in 86 percent of the Deer Creek drainage. Anadromous species with consistent runs up Deer Creek include spring-run Chinook salmon, fall-run Chinook salmon, winter-run steelhead trout and Pacific lamprey (1998, *Deer Creek Watershed Management Plan*). However, declining populations of several anadromous species has led to the 1999 state and federal listing of spring-run Chinook salmon as a threatened species, the 2000 federal listing of steelhead trout as a threatened species, and the 1999 state listing of the fall-run and late-fall run Chinook salmon as species of concern (DWR/DFG 2006).

Provided below is a summary of Deer Creek water resource issues and water management efforts as they indirectly relate to the proposed project. This information was taken from the *Deer Creek Flow Enhancement Program Proposal to the Delta Pumps Fish Protection Agreement Advisory Committee* (DWR/DFG 2006).

2.4.1 General History

- In 1923 the Superior Court of Tehama County adjudicated Deer Creek with 35% of the flow entitlement going to sixteen defendants and 65% to SVRIC. In 1927, DCID was formed when eight of the defendants petitioned Tehama County to form an irrigation district (DWR/DFG 2006).

In 1989, the Resources Agency published a report entitled: *Upper Sacramento River Fisheries and Riparian Habitat Management Plan*. Findings from the plan concluded that Deer Creek is one of only a few waterways in the Central Valley that continues to support a native population of wild spring-run Chinook salmon and the most serious impact to the Deer Creek fishery is the reduction of transportation flows. The 1989 plan identified the number one solution to increasing transportation flows was to negotiate an agreement with water right holders to pump groundwater

into the irrigation systems at critical times in exchange for leaving an equal amount of natural flow in the stream for fish migration (DWR/DFG 2006).

- In 1992, Tehama County enacted Ordinance 1617, which requires a permit to extract groundwater for off-parcel use. In January 1993, California Assembly Bill 3030 amended the California Water Code to allow local water agencies to adopt groundwater management plans (DWR/DFG 2006).
- In 1993, California Department of Fish and Game published a report entitled: *Restoring Central Valley Streams: A Plan for Action*. Findings from this study concluded that Deer Creek has the greatest potential of all Sacramento Valley streams for increasing naturally spawning population of steelhead and spring-run salmon (DWR/DFG 2006).
- In December 1994, the Delta Pumps Fish Protection (Four-Pumps) Agreement Advisory Committee agreed to fund the development of a Deer Creek Water Exchange Project with a goal of providing 50 cfs of supplemental transportation flow during times of critical need. DWR began collecting background data, looking at alternatives to increase instream transportation flows on Deer Creek and develop a draft Deer Creek Water Exchange Agreement between DCID, SVRIC, DFG and DWR that outlined methods to implement a Deer Creek Water Exchange Program (DWR/DFG 2006).
- In September 1996, the Four-Pumps Agreement Advisory Committee agreed to fund the operations and maintenance portion of the Deer Creek Water Exchange Project for a 15-year period after the development of the project was completed (DWR/DFG 2006).
- In November 1996, Tehama County Flood Control and Water Conservation District implemented a countywide AB 3030 Groundwater Management Plan, which incorporates Ordinance 1617 requiring a permit to extract groundwater for off-parcel use (DWR/DFG 2006).
- In 1998, the Deer Creek Watershed Conservancy (DCWC) implemented the *Deer Creek Watershed Management Plan*. As part of the plan, the DCWC adopted several recommendations from the 1989 Resources Agency and 1993 DFG studies, and incorporated as their number one strategy to maintain stream flows necessary for unimpaired fish passage for Chinook salmon and steelhead.
- Since 1998, DCID and neighboring SVRIC, with funding from the Delta Pumps Fish Protection Agreement Advisory Committee, have worked with state, county and local groups to identify their agricultural water needs and study various scenarios to increase fish transportation flows in Deer Creek. In 1998, DWR constructed a parshall flume along DCID's diversion to help identify DCID's seasonal diversion requirements. In 1998 and 1999, several dedicated groundwater monitoring wells were constructed and a comprehensive groundwater monitoring program was developed in the lower Deer Creek watershed. In 2002 a test production well was constructed that would be used as part of the Deer Creek Water Exchange Pilot Program.

2.4.2 Deer Creek Water Exchange Pilot Program

- Historically, agricultural water diverters within DCID as well as SVRIC have cooperated to temporarily reduce their surface water diversions and provide a pulse of increased transportation flow in Deer Creek during times of critical need. Although these informal methods have helped fish migration during critical times, DCID and the resource agencies recognize the need for a long-term solution to the fish transportation issues in Deer Creek.

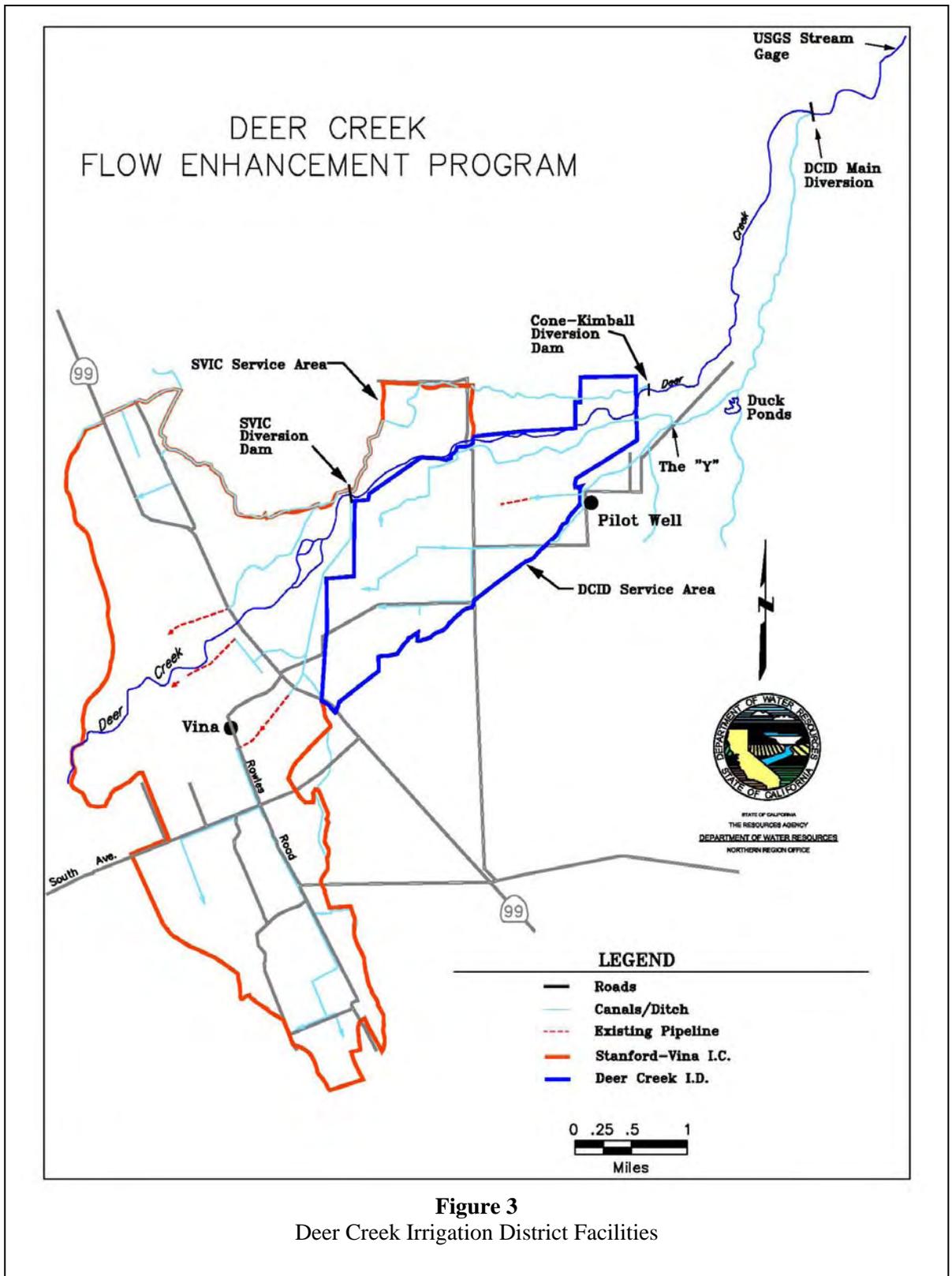


Figure 3
Deer Creek Irrigation District Facilities

In 2003, DCID and Northern Region DWR entered into an agreement to establish a one-year Deer Creek Water Exchange Pilot Program (Pilot Program) to test the effectiveness of increasing the fish transportation flows in Deer Creek by utilizing groundwater in substitution for bypassed surface water. The primary focus of the Pilot Program was to ascertain groundwater level and water quality related impacts associated with pumping from the lower Tuscan aquifer with the recently completed test production pilot well. A groundwater extraction permit was obtained from Tehama County for the operation of the pilot well. A secondary element of the Pilot Program was to evaluate newly developed guidelines for program operations and management. The guidelines, or Groundwater Management Objectives, were designed to prevent third party impacts by combining a rigorous program of groundwater monitoring with a clear set of groundwater level and water quality criteria to guide pumping operations. Funding for the Deer Creek Water Exchange Pilot Program was through the Delta Pumping Plant (Four Pumps) Fish Protection Agreement.

Findings from the Pilot Program indicated that groundwater extraction from the lower portion of the Tuscan aquifer had no groundwater level or water quality related impacts to existing agricultural and domestic wells that produce from the upper-middle portions of the aquifer. The pilot well successfully operated for 85 days, pumping 450 acre-feet of groundwater. Monitoring of Deer Creek flow and DCID surface water diversions was conducted during the Pilot Program to evaluate future bypass operations, but no surface water was bypassed during the 2003 program.

In 2004, additional aquifer performance testing was conducted using existing wells, which produce from the middle aquifer. Test results indicate that extended pumping from existing agricultural wells would cause some impact to groundwater levels in surrounding agricultural wells, but could be used on a limited basis for program-related pumping without significant impact. The pilot well was also operated during 2005 and 2008 under the 2004 groundwater extraction permit with similar results. During Spring 2009, a pulse flow was performed at the request of DFG by DCID in order to provide transportation flows to spring-run Chinook salmon. For this pulse flow, DCID earned groundwater substitution credits and pumped the pilot well during the 2009 irrigation season under a new groundwater extraction permit that is in effect until 2016.

2.4.3 Delta Fish Agreement

In 1986, DWR and DFG signed an agreement to provide for offsetting direct losses of striped bass, steelhead, and Chinook salmon caused by the diversion of water at the Harvey O. Banks Delta Pumping Plant (Banks), a key facility for the State Water Project (SWP). The Agreement is commonly known as the Delta Fish Agreement or the Four Pumps Agreement (because it was adopted as part of the mitigation package for four additional pumps at the Banks Pumping Plant). Since 1986, approximately \$60 million in combined funding from the Annual Mitigation and \$15 million Lump Sum components have been approved for over 40 fish mitigation projects. The 1986 Delta Fish Agreement has been amended three times and is undergoing another 2008 Amendment for the expenditure for mitigation funding for ongoing, new or longer term projects through 2012. The proposed project is funded by the Delta Fish Agreement.

Operations Criteria and Plan Biological Assessment (OCAP-BA)

In 2007 DWR and DFG entered into a Memorandum of Understanding (MOU) in order to assist in the facilitation of the reinitiated Endangered Species Act (ESA) section 7 consultation of the federal Biological Opinions (Opinion) on the coordinated State Water Project (SWP and Central Valley Project (CVP) operations, referred to as the Operations Criteria and Plan (OCAP). The proposed action in the OCAP-Biological Assessment (OCAP-BA) section 7 consultation includes activities undertaken by DWR in operating the SWP that potentially affect state listed species under the California Endangered Species Act (CESA).

There are various cooperative management programs that help protect and mitigate direct losses of listed species attributable to the SWP and CVP and help improve and restore fishery resources. Chinook salmon and steelhead are among the species that benefit from the various actions provided under these agreements and programs (USDI, 2008)

As per the 2008 Amendment, DWR and DFG shall work together in coordination with the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to continue funding and implementation of mitigation actions. The 2008 Amendment mitigation actions are identified as “conservation actions” in the OCAP-BA and include ongoing annual conservation actions (Ongoing Actions), accepted conservation actions (Early Implementation Actions) and additional actions (Other Potential Conservation Actions). The proposed Deer Creek Flow Enhancement Project (DCFEP) is funded under the Delta Fish Agreement (USDI, 2008) and identified as an “ongoing conservation action” in the OCAP-BA.

As part of the 2008 Amendment, each conservation action identified in the 2008 Amendment will undergo its own project-specific consultation with DFG, USFWS and NMFS, as appropriate. As per the 2008 Amendment a number of Best Management Practices (BMPs) will be implemented to avoid and minimize potential impacts to endangered and threatened species. All BMPs that were included in the OCAP-BA include:

- General BMPs
- Aquatic and Wetland Species / Water Quality
- Soft Bird’s Beak / Suisun Thistle
- Vernal Pool Plants
- Vernal Pool Branchiopods
- Valley Elderberry Longhorn Beetle
- California Tiger Salamander
- California Red-legged Frog
- Giant Garter Snake
- California Clapper Rail
- Western Snowy Plover / California Least Tern
- Salt Marsh Harvest Mouse

However, the BMPs to be implemented for any given action vary according to the species present within a particular conservation action area. Applicable BMPs identified in the 2008 Amendment and OCAP-BA are hereby incorporated by reference (Appendix C) (USDI, 2008). Based upon site specific biological surveys and a Biological Resources Assessment (Appendices D-F) conducted for the DCFEP, BMPs that apply to the proposed project include General BMPs, Water Quality, and Valley Elderberry Longhorn Beetle. BMPs associated with Aquatic and Wetland Species, Vernal Pool Plants, Vernal Pool Branchiopods and giant garter snake (*Thamnophis gigas*) are not applicable to the proposed project; refer to Section 4, Biological Resources for a more detailed analysis and discussion. The OCAP-BA is hereby incorporated by reference. A copy is available at the Northern Region DWR office (2440 Main Street, Red Bluff, CA 96080).

NOAA-NMFS Biological Opinion

On June, 4 2009, the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NMFS) issued a final biological opinion (Opinion) based on its review of the proposed long-term operations of the Central Valley Project and State Water Project and their effects on listed anadromous

fishes and marine mammal species, and designated and proposed critical habitats, in accordance with section 7 of the Endangered Species Act (ESA). As part of the Opinion, Essential Fish Habitat (EFH) Conservation Recommendations for Pacific Coast Salmon species, including spring-run Chinook salmon and steelhead, were also identified. Specifically, the Opinion states:

“DWR should continue to fund the Amended Delta Fish Agreement (Amendment) to mitigate, compensate for, and enhance habitat for anadromous salmonids in the Central Valley. Past actions under this agreement have improved upstream habitats and conditions for spring-run, fall-run, and steelhead and have contributed to the current status of the species. Ongoing actions identified in the Amendment should be continued, if the benefits of past actions are to be maintained. NMFS expects that this Amendment will also support implementation of actions specified in this RPA, such as re-introduction of winter-run to Battle Creek and habitat improvements at the Yolo Bypass, Liberty Island and other areas.”

As stated previously, the 2008 Amendment mitigation actions identified as “conservation actions” in the OCAP-BA include the proposed Deer Creek Flow Enhancement Project (DCFEP), an ongoing annual conservation action.

The NOAA-NMFS Biological Opinion is hereby incorporated by reference. A copy is available at the Northern Region DWR office (2440 Main Street, Red Bluff, CA 96080).

2.5 Project Characteristics

2.5.1 Memorandum of Agreement & Deer Creek Flow Enhancement Program (DCFEP) Phase One

Based upon the success of the Deer Creek Water Exchange Pilot Program, DCID is proposing the implementation of a flow enhancement program as detailed in the 10-year Memorandum of Agreement (Agreement) between DCID, DWR and DFG (Appendix A). The Deer Creek Flow Enhancement Program (DCFEP) would be implemented in two Phases. Phase One is the proposed project and is the subject of this CEQA analysis. Phase Two would be initiated after the establishment of baseline conditions (as part of Phase One) as well as the completion of other DCID water use efficiency programs.

Phase One of the Deer Creek Flow Enhancement Project

Phase One consists of the following components, which are the subject of this CEQA analysis:

- Bypassing surface water from Deer Creek
- Installation and operation of two water supply wells or retrofit of two existing wells for irrigation purposes
- Deer Creek Annual Monitoring Program (DCAMP)

Phase One would be the installation and operation of up to two new agricultural water supply wells and/or the retrofitting and leasing of up to two existing agricultural wells to create a base flow capacity of approximately 10 cfs of groundwater to be used in exchange for surface water bypassed by DCID. The Phase One base flow capacity of 10 cfs would be used as an instantaneous exchange of an equal amount of Deer Creek bypass flow provided by DCID (DWR/DFG 2006). Phase One includes Program-related operations, maintenance, permitting, and monitoring as well as annual baseline monitoring associated with the DCAMP.

Phase One also includes implementation of bypass of pulse flows. Pulse flows are the amount of surface water bypassed by DCID that exceeds the base flow of 10 cfs. Pulse flows would be used for fish

transportation during critical times and would only be made available upon mutual consent of DCID, DWR and DFG.

Water pumped by the new wells to replace bypassed surface water will not be transferred for export outside of the Deer Creek watershed per the Tehama County Ordinance No. 1617, Groundwater Extraction and Off-Parcel Use Permit (Appendix B). Water that remains in-stream under the proposed project would be solely for the purpose of preserving or enhancing fish and wildlife resources.

Phase Two of the Deer Creek Flow Enhancement Program

Phase Two would include the determination of what amount of additional fish transportation flow can be made available to Deer Creek through implementation of other agricultural water use efficiency measures and water management improvements. Implementation of Phase Two would be dependent upon the baseline monitoring data gathered from Phase One as well as the completion of other water use efficiency projects not included as part of the Agreement or this CEQA analysis. Other projects include DCID distribution system improvements funded under Section A of DCID's 2004 Agricultural Water Use Efficiency (AgWUD) Grant.

Phase Two would require a separate CEQA analysis once the amount of flow to be achieved through water use efficiency improvements is defined and baseline conditions are established.

2.5.2 Bypassing Surface Water from Deer Creek

Preliminary data indicates that increasing the transportation flow during late spring (April-June) and early fall (October and November) may be beneficial to Chinook salmon and steelhead populations (CDFG, 1993). As detailed in the Agreement, the proposed flow enhancement program would operate from April 1 through June 30 and October 15 through November 15 when Deer Creek flow, as measured below the Stanford Vina Diversion Dam, is equal to or less than 50 cfs, or upon mutual consent of DCID, DFG, and DWR (Appendix A). As per the Agreement, DFG may request from DCID to bypass up to 10 cfs of surface water flow at the Deer Creek diversion to provide a base flow for fish transportation. In exchange for the bypassed water, DCID would use groundwater from two wells, installed as part of this project, to provide a substitute water supply for irrigation purposes.

DCID would not pump more than the amount that it has bypassed, up to 10 cfs. The bypass frequency, duration and volume of DCFEP bypass requirements are dependent on several variables, including rainfall and instream temperatures. Generally, in average wet weather and dry years, the average annual volume of water necessary to meet the DCFEP bypass flow is 1,350 acre-feet and 2,060 acre-feet, respectively.

During certain situations, DFG may request that DCID bypass up to approximately 30 cfs for purposes of generating a pulse flow to last one or two consecutive days. The purpose of the pulse flow would be used to attract migrating adult salmon under the following conditions: 1) adults are observed between the Stanford Vina Ranch Irrigation Company's dam and the confluence of Deer Creek with the Sacramento River, 2) maximum daily water temperature is between 65° F and 70° F as measured at DWR's Stanford Vina Dam gauge, and 3) minimum critical passage depths of approximately seven inches are reached creating a barrier to fish passage. A pulse flow may also be requested in June to trigger the outmigration of juvenile salmon and steelhead if they are observed in the lower reaches of Deer Creek.

DCID will use the groundwater wells to provide a substitute supply of irrigation water only to replace an amount equal to the amount of surface water bypassed by DCID. Since DCID can only pump a maximum of 10 cfs from the wells, to the extent that more than 10 cfs is bypassed to satisfy a request for a pulse

flow, DCID shall have one year from the date that additional surface water was bypassed to make a groundwater substitution.

2.5.3 Water Supply Well Installation, Operation and Monitoring

The proposed project would alleviate, in part, impediments to salmonid migration by enabling DCID to leave surface water in Deer Creek that would otherwise be diverted for irrigation purposes. DCID can bypass such surface water, yet still make its deliveries for irrigation to its landowners, by pumping groundwater from two new or retrofitted wells.

Specifically, the proposed project would consist of the drilling, installation, development, test-pumping and production of two new groundwater wells or the retrofit of two existing wells in the DCID area for agricultural irrigation supply. The two wells would have a total capacity to pump 10 cubic feet per second (cfs) of groundwater, an amount equal to the surface water bypassed from Deer Creek for the benefit of migrating spring-run Chinook salmon and steelhead trout.

For the purposes of this Initial Study document, four potential new well sites and two potential refurbished well sites are being evaluated. These wells are designated as Well No. 1 (A-1), Well No. 2 (A-2), Well No. 3 (A-3) and Well No. 4 (A-4). Existing wells being evaluated are designated as Refurbished Well No. 1 and No. 2 (RW-1 and RW-2), **Figure 4, Potential Well Locations**.

The potential new wells are as follows:

- Well No. 1 (Site A-1): Located approximately 2,000 feet east of the Leininger Road and Reed Road intersection, south of Reed Road on APN 079-040-581.
- Well No. 2 (Site A-2): Located in the northeastern portion of the DCID on APN 079-010-11-1.
- Well No. 3 (Site A-3): Located in the central portion of the DCID on APN 079-040-49-1.
- Well No. 4 (Site A-4): Located in the central portion of the District, northwest of the Leininger Road and Reed Road intersection on APN 079-040-74-1.

An alternative to drilling new wells is improving and increasing the depth of existing wells. The potential wells that could be improved are:

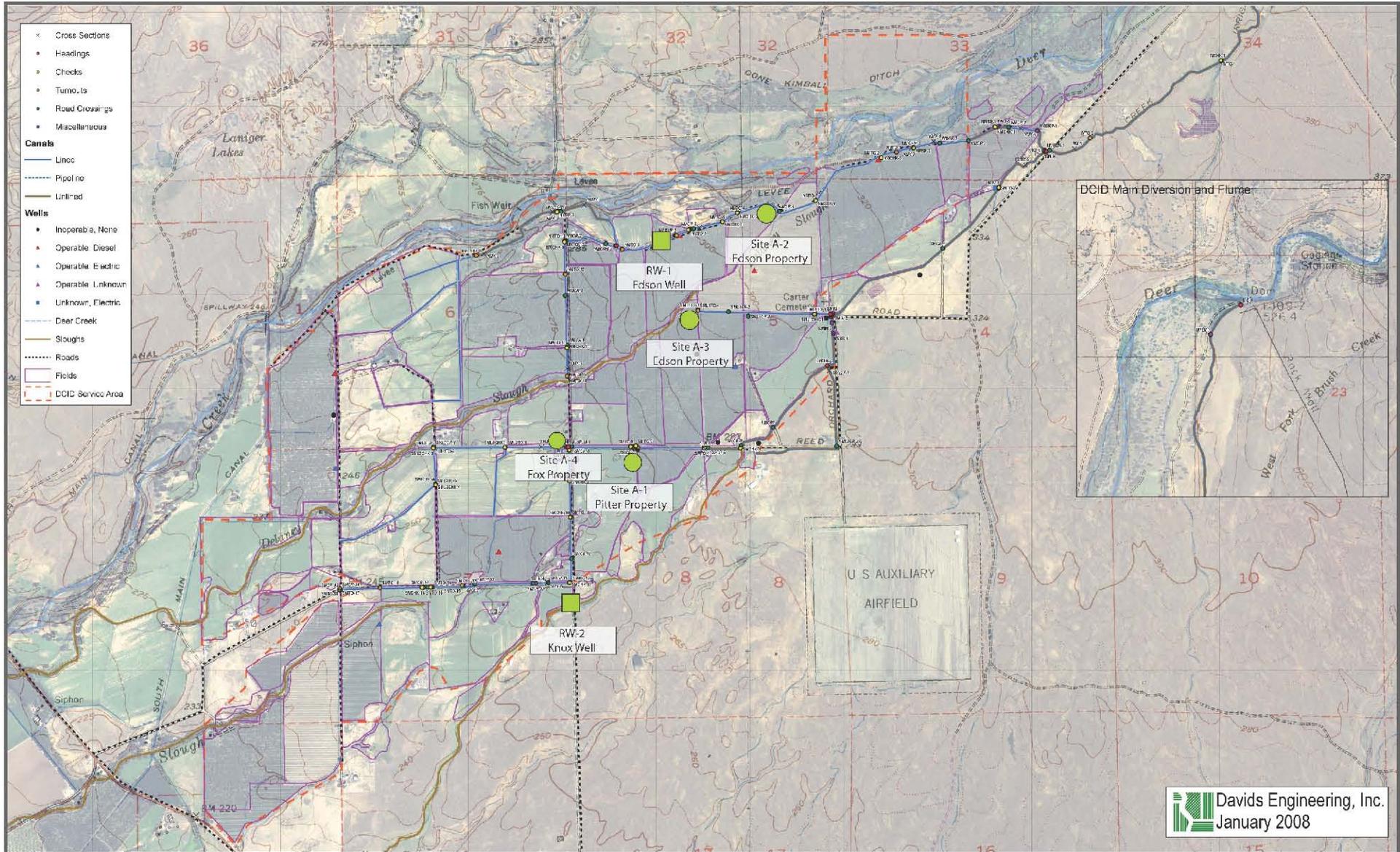
- State Well No. 24N/01W-05C001M (Site RW-1): Located in the northeastern portion of the DCID on APN 079-101-11-1.
- State Well No. 24N/01W-07J001M (Site RW-2): Located south of Vina Road on APN 079-040-15-1.

Existing Well RW-1 is currently used for irrigation, and its current depth is 245 feet. Existing Well RW-2 is also used for irrigation with current depth of 315 feet. The depth of both wells would need to be increased, other well improvements may also be necessary.

2.6 Project Well Specifications

Test holes will be drilled and logged up to a depth of 1,000 ft. Based on the hydrogeologic characteristics of the aquifer, the production wells will be designed and constructed to draw from aquifer zones which will maximize production while minimizing impacts to nearby third-party wells. The Groundwater Monitoring and Management Guidelines established for the DCFEP will ensure that the operation of program-related pumping wells will not adversely impact surrounding groundwater levels and water quality. Program-related pumping will be managed to maintain groundwater elevations at a level that

Deer Creek Irrigation District



Within Tehama County
 Source: David's Engineering, Inc
 By Sharon Caddy
 Created 16 January 2008

**Figure 4: Potential Well Site Locations Map
 Deer Creek Flow Enhancement Project**

David's Engineering, Inc.
 January 2008

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will assure an adequate and affordable irrigation water supply, and a sustainable supply of groundwater for both agricultural and domestic use. In addition, management and monitoring of the DCFEP operations will be conducted to comply with the provisions of the Tehama County Groundwater Extraction and Off Parcel Use permit which requires that groundwater extraction for off-parcel use does not:

- Bring about overdraft,
- Bring about salt water intrusion,
- Adversely affect the ability of the aquifer to transmit water,
- Adversely affect the water table,
- Result in the mining of groundwater.

Actual well design and construction specifications for installation and construction of new wells, and refurbishment of existing wells, will be based on data gathered from test holes, which will be drilled just prior to drilling and construction of the production wells. If existing wells are to be refurbished and used, the methods of refurbishment will be based on the existing well's specifications. Ultimately, each well would be designed to draw approximately 1,350 gallons per minute (1,944,000 gallons per day or 5.97 acre-feet per day) or a combined maximum of 10 cfs. The wells would be operated for up to 90 days between April to June and 30 days October to November.

2.6.1 Site Preparation

All potential well sites and the refurbished well sites are located immediately adjacent to the existing DCID irrigation distribution system in agricultural land use areas, including orchards or grazing land. Well water would be conveyed to the DCID system via above ground piping.

The proposed project would require the establishment of a drilling staging or drilling pad area. The staging area would result in the disturbance of 100x100 feet or 10,000 square feet (approximately ¼ acre). Potential disturbances of the ground surface during drilling operations could result from:

- Mobilization and demobilization of drilling equipment;
- Support vehicle traffic, i.e., cars, trucks, water tanker truck, dump truck, front end loader;
- Discharge of inert drilling fluids (mixture of native clay and/or bentonite clay and water);
- Discharge of drill cuttings (volume of cuttings is estimated to be 160 yards per well); and
- Stockpiling of soil and rock from boring activities within the staging area.

Drill cuttings and inert bentonite clay, produced during drilling operations will be stored within the drilling staging area in a trench, during and after drilling. The dimensions of the proposed trench would be approximately 15 feet wide, by 40 feet long and up to six feet deep. Depending on the final well location, if full or partial containment of drill cuttings is required and cannot be dispersed onsite, the cuttings and fluids would be contained with the appropriate number of roll-off bins and baker tanks. Cuttings and fluids would be transported to an appropriate off-site location for disposal.

Once wells are installed and operational, the final disturbed surface area would result in a 10 feet by 15 feet concrete pad, pump-house enclosure and 16-inch discharge pipes. Discharge pipes would be routed over land from the pump-house to an existing concrete-lined ditch, which is part of DCID irrigation distribution system. All wells will be located immediately adjacent to the DCID system.

2.6.2 *New Production Well Installation*

The DCID will obtain a Groundwater Extraction and Off Parcel Use Permit, per Tehama County Ordinance 1617. The well driller will obtain and abide by any additional permits that may be necessary to complete the well drilling.

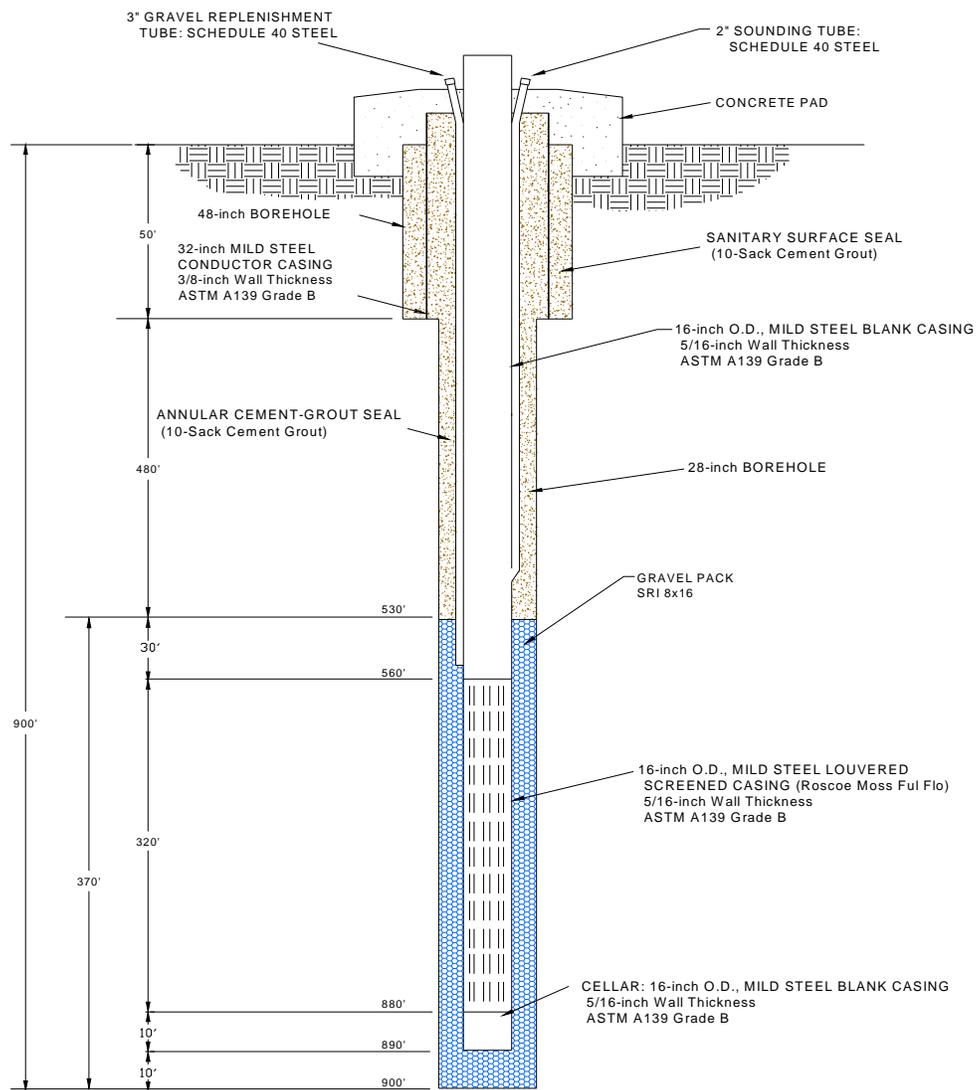
Drilling Equipment

The production wells will be drilled with a truck-mounted reverse rotary drill rig and necessary accompanying equipment (drilling fluid pump, pipe rack, drilling fluid holding tank, and shaker system). Additional equipment that may be used includes a front-end loader, containment bins for drill cuttings and drilling fluid. The drilling rig and all accessory equipment will occupy a maximum area of approximately 100 feet by 100 feet. Small pumphouses (10' X 15') would enclose the well facilities and well water would be conveyed to the existing DCID distribution system via conveyance pipelines.

Drilling Operations and Work Activities

The proposed design for the new production wells are shown in **Figure 5**. The actual depth of well screen, gravel pack, and annular seals will be based on the cuttings and geophysical log data collected during test-hole drilling. The proposed work sequence for well drilling, construction, and testing is listed below.

1. Drill an 8-inch test borehole up to 1,000 feet. Collect and log cuttings samples every 10-feet.
2. Conduct down-hole geophysical logging. Geophysical logging will include electric log, resistivity log, spontaneous potential log, and a caliper log.
3. Based on cuttings and geophysical log data, develop specific well design.
4. Drill a 42 to 48-inch borehole to 50-feet, set a 32 to 36-inch outside diameter, 3/8-inch thick, conductor casing, and place 350 cubic feet of annular sand-cement grout seal between the borehole and the conductor casing.
5. Drill 28 to 32-inch borehole to 900 feet.
6. Purchase and install 16 to 20-inch internal diameter, 5/16-inch wall thickness, mild steel casing to the appropriate depth based on final design.
7. Purchase and install 16 to 20-inch internal diameter, 5/16-inch wall thickness, mild steel full-flow louvered well casing (Roscoe Moss or approved equal) to the appropriate length and depth based on final design.
8. Purchase and install 3-inch, mild steel, gravel replenishment tube to the appropriate length based on final design.
9. Purchase and install 2-inch, mild steel, air vent/sounding tube to the appropriate length based on final design.
10. Place 8x16 Silica Resources Incorporated (SRI) gravel pack to the appropriate intervals based on final design.
11. Place annular sand-cement grout seal between the borehole and the casing to the appropriate depth based on final design.
12. Conduct 10-hours of mechanical well development.
13. Install test pump.
14. Conduct up to 10-hours of pumping well development.
15. Perform an 8 to 10-hour Step-Drawdown Pumping Test and a 24-hour Constant-Rate Discharge Pumping Test.
16. Remove test pump.
17. Conduct a color video camera survey.
18. Purchase and install pump bowl assembly, electric motor and power panel.



(Note: not to scale)

Figure 5
Proposed New Production Well Design
(Note: actual design will be based on test hole cuttings and geophysical log data)

Drilling Schedule

The total drilling, construction and testing of the test-production wells would require a maximum of three months. The installation of the pump, motor and electric power could take an additional two months.

In order to alleviate caving and collapse of the borehole, the proposed production well drilling work schedule will be 24-hours per day, seven days per week, during work activities 4 through 11 listed above. The remaining installation and construction schedule will consist of an 8 to 10-hour workday.

New Production Well Operation

The new production wells will operate under electrical power. Power lines are located immediately adjacent to each of the potential well locations. New transformers and a new power line drop to the well sites would be needed. Water pumped from the wells would discharge into the DCID distribution system via above ground conveyance pipelines. Access to each of the potential well sites would be provided by existing maintenance roads.

New Production Well Monitoring

Groundwater levels and discharge volumes will be monitored in the new production wells. The groundwater levels will be recorded with a downhole data-logger and discharge volumes will be visually recorded from an inline flow meter. During periods of pump operation, weekly visits to the well site to collect data may be required. During periods of non-operation, monthly to quarterly visits may be required.

Groundwater Monitoring and Management Guidelines are included as part of the Agreement and are part of the Deer Creek Annual Monitoring Program (DCAMP). The Guidelines includes surface and ground water quality monitoring protocols for data collection and response actions non-compliance with water quality criteria. The DCAMP is discussed further below, Section 2.7.

2.6.3 Refurbishment of Existing Wells

Refurbishment of two existing wells is being considered as an option to the installation of new wells.

Well Refurbishing Operations

Refurbishing of existing wells will require removal of existing pump, motor and bowls from the well, video logging of casing and borehole, possible cleaning and reconditioning of well casing, installation of test pump, test pumping of the well, removal of the test pump, and installation new pump motor and bowls. Potential site disturbance of the ground surface for the refurbishment of wells is would be a maximum area 40 feet by 40 feet; however for the purposes of this analysis and consistency, a worst-case scenario of 100 feet by 100 feet is assumed (same as that of a new well).

Well Refurbishing Equipment

Installation and removal of pumping equipment will require a small to medium truck-mounted drilling rig (Smeal 20-40,000 ton) and some minor ancillary equipment (flat-bed truck, and work vehicles). If the video data from the wells indicates the need for further cleaning or conditioning of the casing, additional fluid containment will be need to collect and treat development well water. Treated water will be treated and transported to an appropriate off-site location for disposal. The truck-mounted drilling and all accessory equipment will occupy a maximum area of approximately 100 feet by 100 feet.

Well Refurbishing Schedule

The timeline for refurbishment of existing wells will depend upon the results of the down-hole video logging and the condition of the wells. The maximum time for refurbishment is estimated at two months. The installation of the new pump, motor and electric power could take an additional two months. The daily work schedule associated with well refurbishing would be 24 hours per day 7 days a week.

Refurbished Well Operations

The refurbished existing wells will be equipped to operate under electrical power and discharge into the DCID distribution system. Access to refurbished well sites would be provided by existing agricultural maintenance roads.

Refurbished Well Monitoring

Groundwater levels and discharge volumes will be monitored in the refurbished wells. The groundwater levels will be recorded with a downhole data-logger and discharge volumes will be visually recorded from an inline flow meter. During periods of pump operation, weekly visits to the well site to collect data may be required. During periods of non-operation, monthly to quarterly visits may be required. Site visits will require minimal foot traffic and will take a maximum of one hour. No environmental impacts are anticipated from well monitoring activities.

2.7 Deer Creek Annual Monitoring Program (DCAMP)

The proposed project also includes a Deer Creek Annual Monitoring Program (DCAMP). Components of the DCAMP include the Groundwater Monitoring and Management Guidelines (Guidelines) and the Deer Creek Fish Passage Assessment Plan. The DCAMP provides groundwater level criteria, water quality criteria, and reporting requirements. The Fish Passage Assessment Plan monitors fish passage conditions over a range of water year types to determine the timing and effectiveness of the DCFEP operations. The Plan also focuses on determining the need for pulse flows, riffle modifications, water temperature standards, and reporting requirements.

2.7.1 Groundwater Monitoring and Management Guidelines

The Groundwater Monitoring and Management Guidelines establish a clear set of criteria for program monitoring, reporting and management and are similar to the management objectives used during the 2003 Pilot Program and 2004 test-pumping program. These guidelines include criteria for program operations and maintaining a predetermined range of acceptable groundwater levels surrounding the production wells, which would be included as part of the Tehama county Groundwater Extraction Permit. Specifically the Guidelines include provisions for groundwater level measurements, maintaining the groundwater monitoring grid network, frequency of groundwater measurements, groundwater level warning stages, response actions, and annual reporting. The Guidelines are included as an attachment to the Agreement in Appendix A.

2.7.2 Fish Passage Assessment Plan

The Fish Passage Assessment Plan monitors fish passage conditions over a range of water year types to determine the timing and effectiveness of the DCFEP operations. The Plan also focuses on determining the appropriate habitat conditions to insure unimpaired migration. The Plan also identifies fish passage

measuring methods, conditions under which pulse flows may be requested, water temperature standards, timing of monitoring, and reporting.

The Fish Passage Assessment Plan monitors salmonid occurrence, which includes underwater and ground observation techniques. For underwater surveys, specifically snorkeling, a 4(d) research authorization take permit is required. Harassment is minimized by making each survey a "one pass" event by no more than 2 observers. All salmon encountered are enumerated and included in DFG's 4(d) take limit for that year. To date, take has not been exceeded using snorkeling activities and is not expected to be exceeded with this monitoring activity. A current DFG 4(d) permit authorizes monitoring from April 14th through September 15th in Deer Creek, which includes the scope of this project.

The ground surveys referenced in the Plan are walking surveys in the creek. Surveyors avoid areas where juveniles would be impinged and are trained to avoid the "pit" and tail spill" areas to avoid impacting fertilized eggs. Surveyors walk around areas with actively spawning salmon.

Critical riffle areas would be assessed in the spring when juvenile salmon may be actively migrating downstream. If any obvious juvenile or adult salmonid stranding is encountered during these surveys pulse flows may be necessary. The pulse flows will provide flows up to an additional 30 cfs. This is water that would be part of the baseflow if not diverted for irrigation purposes, therefore increase in turbidity is not anticipated. Flow pulses will provide unimpeded passage for adult fish that would normally be unable to complete migrations under lower flow conditions. As detailed in the monitoring plan, *"Before and after pulse flow events, visual observations (including ground surveys, underwater surveys and fish ladder counts) will be used to evaluate the effectiveness of pulses of water in triggering adult and juvenile fish movement, including evaluation of diurnal timing of pulse release and experimental ramp down rates."*

The Fish Passage Assessment Plan is included as an attachment to the Agreement in Appendix A.

SECTION 3.0
INITIAL STUDY ENVIRONMENTAL CHECKLIST FORM

This form and the descriptive information in the application package constitute the contents of an Initial Study in accordance with Section 15063 of the State CEQA Guidelines.

1. **Project Title:** Deer Creek Irrigation District, Deer Creek Flow Enhancement Program
2. **Lead Agency Name and Address:** Deer Creek Irrigation District
Post Office Box 154
Vina, CA 96092
3. **Contact Person and Phone Number:** John Edson, DCID
530-519-2366
4. **Project Location:** Tehama County, California
Section 33, T25N R1W Richardson Springs NW Quadrangle
Sections 5-8, T24N R1W Vina Quadrangle
5. **Project Sponsor's Name and Address:** Deer Creek Irrigation District
Post Office Box 154
Vina, CA 96092
6. **Description of Project:**

For a complete project description, refer to Section 2.0.

Purpose and Need of Proposed Project

Declining populations of several anadromous fish species led to the 1999 State and Federal listing of spring-run Chinook salmon (*Oncorhynchus tshawytscha*) as a threatened species, the 2000 Federal listing of steelhead trout (*Oncorhynchus mykiss*) as a threatened species, and the 1999 State listing of the fall-run and late-fall run Chinook salmon as species of concern. Deer Creek represents one of the California's largest undammed watersheds in the Sacramento River Basin.

Several unique habitat features within Deer Creek make it an important resource for anadromous fish in the Sacramento Valley, particularly spring-run Chinook salmon and steelhead trout. In a 1989 Study conducted by the California Resources Agency entitled "Upper Sacramento River Fisheries and Riparian Habitat Management Plan," it was determined that Deer Creek is one of only a few waterways in the Central Valley that continues to support a native population of wild spring-run Chinook salmon (Resources Agency, 1989). Five years later, the California Department of Fish and Game published a report, "Restoring Central Valley Streams: A Plan for Action," which concluded that Deer Creek has the greatest potential of all Sacramento Valley streams for increasing naturally spawning populations of steelhead trout and spring-run Chinook salmon (CDFG, 1995). Therefore, Deer Creek is considered an important resource for the recovery of anadromous fish in the Basin.

However, despite Deer Creek's potential, due in part to naturally occurring low flows and diversions by Deer Creek Irrigation District (DCID) and Stanford Vina Ranch Irrigation Company (SVRIC), the upstream migration of spring-run Chinook salmon adults or downstream

migration of juvenile spring-run Chinook salmon may be impeded or blocked during April, May, June and October.

Over the years, voluntary actions by diverters on Deer Creek have provided for pulsing of flows during critical periods, demonstrating the willingness of local water users to adjust water management practices to achieve ecosystem benefits. Increasing Deer Creek flows during critical periods of fish passage has been identified as a primary need by the DCID (DCID, 2005).

Conceptual Framework for the Deer Creek Flow Enhancement Program

In an effort to provide local assistance to the Deer Creek water right holders, the California Department of Water Resources (DWR) has developed a Conceptual Framework for a Deer Creek Flow Enhancement Program (DCFEP). This framework was designed to fulfill the water needs of local agricultural and domestic water users, while achieving the fisheries flow objectives in Deer Creek. The framework has four components that are designed to work together to provide the water to achieve targeted fish flows (DCID, 2005).

- Efficiency improvements to the DCID and SVRIC distribution systems
- Supplemental water supply development (proposed project)
- Compensation for DCID and SVRIC
- Adaptive management and monitoring programs

Overview of the Proposed Project - Memorandum of Agreement

The proposed project is a component of the Conceptual Framework for the DCFEP. The project is the implementation of Phase One of the Memorandum of Agreement (Agreement) between DCID, DWR, and California Department of Fish and Game (DFG) for the construction, operation, maintenance and monitoring of a flow enhancement program on Deer Creek (Appendix A). This component of DWR's Conceptual Framework for the DCFEP is a water exchange project intended to provide salmonid passage flows for adult spawners and out-migrant young in Deer Creek. The Agreement provides for the installation of two new groundwater agricultural water supply wells and/or the refurbishment of two existing wells to extract up to 10 cfs of groundwater for irrigation purposes during critical migration periods. The installation of the wells would enable irrigators to switch from using stream flow to groundwater, thus leaving, or "bypassing," water in Deer Creek during critical spring (April – June) and fall (October – November) migration periods. Maintaining water flows during these critical periods would allow fish to reach areas upstream of the Stanford Vina Diversion Dam in Deer Creek. Ultimately, the 10-year Agreement and flow enhancement program would improve access by salmonids to and from approximately 25 miles of Deer Creek upstream from the diversion dam (USDI, 2008).

The Agreement also includes the Deer Creek Annual Monitoring Program (DCAMP), which provides Groundwater Monitoring and Management Guidelines and a Fish Passage Assessment Plan. For an overview of the DCAMP refer to Section 2.7. The DCAMP is also an attachment to the Agreement in Appendix A.

7. Surrounding Land Uses and Setting:

Land uses surrounding the proposed well locations are agricultural uses including orchards, crops and grazing land as well as agricultural outbuildings, maintenance/access roads and DCID irrigation canals and ditches.

8. **Other Public Agencies Whose Approval Is Required:**

- Department of Water Resources
- California Department of Fish and Game
- Tehama County, Groundwater Extraction and Off Parcel Use Permit

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ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology /Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input checked="" type="checkbox"/> Hydrology / Water Quality | <input type="checkbox"/> Land Use / Planning |
| <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population / Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

DETERMINATION:

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Print Name

For: Deer Creek Irrigation District

EVALUATION OF ENVIRONMENTAL IMPACTS:

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- 4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a) Earlier Analysis Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
 - a) the significance criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significance

ENVIRONMENTAL CHECKLIST

1. AESTHETICS:

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Analysis

- a) *No Impact.* The proposed project includes the construction and operation of two groundwater wells and associated facilities. Four potential new well locations and two existing wells have been identified as the possible location for the two future well sites. The potential well sites are located within or adjacent to areas that are used for agricultural purposes, including grazing, orchards, residences, access roads and associated agricultural facilities. The construction and operation of the wells would not result in a substantial change to the existing environment as to create a significant change or obstruct or adversely affect scenic vistas. No impact can be identified and no mitigation is required.
- b) *No Impact.* The potential well sites are located within areas that are currently used for agricultural production and activities including grazing, orchards, residences, access roads, ditches and canals. These uses would not be considered scenic resources. Additionally, the project site is not within a state scenic highway. No impact can be identified and no mitigation is required.
- c) *No Impact.* The proposed project includes the construction and operation of two wells, groundwater conveyance pipelines and associated facilities. The potential well sites are located within areas that are in agricultural production or are subject to agricultural activities, including grazing and agricultural maintenance/access roads. The parcels surrounding the proposed well locations are also used for agricultural production and have been developed with agricultural infrastructure including access roads, wells, and ditches and canals for water transport. Therefore, construction and operation of the wells would not substantially change or degrade the existing visual character or quality of the individual well sites and their surroundings. Therefore, there are no impacts to the visual character of the area.
- d) *Less than Significant With Mitigation Incorporation.* The drilling and installation of the proposed wells would occur 24-hours per day, seven days per week for initial activities to prevent caving and collapse of the borehole. The nearest residential land use to located adjacent to potential well

sites include single-family residential units located within 500 feet of proposed new well and refurbished well sites, these include: approximately 200 feet southwest and 300 feet southeast of well site A-4 at the Leininger Road and Reed Road intersection; approximately 400 feet west of well site A-1; and approximately 500 feet northeast of RW-2 at the intersection of Vina Road and Leininger Road. All other potential well sites are surrounded by agricultural land uses, with the nearest residence located no less than 1,200 feet to the nearest potential well site. Although nighttime construction lighting would be temporary, there is a potential for creating nighttime glare. Therefore, the following mitigation measure shall be applied during construction activities:

Mitigation Measures

MM1-1 All nighttime lighting for drilling and installation activities will be directed so as not to extend beyond the construction staging area and directed away from the visual field of adjacent residents and toward construction activities thereby minimizing light spillover to adjacent residential land uses.

Implementation of the above mitigation measure would be sufficient to reduce potential temporary construction nighttime lighting impacts to a less than significant level. Operation of the wells would not include permanent outdoor lighting. There would be no long term nighttime impacts related to light and glare and no additional mitigation is required.

2. AGRICULTURAL RESOURCES:

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to or conversion of forest land to non-forest use non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact Analysis

- a) *Less Than Significant.* The potential well sites, A-1 and A-3 are located in areas where the soils are designated as Prime Farmland. Soils in the vicinity of these potential wells sites include:
- Well A-1: Mzd, Molinos fine sandy loam and Mzs, Molinos gravelly fine sandy loam (prime farmland).
 - Well A-3: Mzd, Molinos fine sandy loam (prime farmland).

Well A-4 and Well A-2 are located in areas that border prime farlands soils. Depending on the exact location of Wells A-4 and A-2, the following soil types are present within the vicinity of these well sites.

- Well A-2: Mzt, Molinos complex (not prime farmland) and Mzd, Molinos fine sandy loam (prime farmland).
- Well A-4: Mzt, Molinos complex (not prime farmland) and Mzs, Molinos gravelly fine sandy loam (prime farmland).

The construction area associated with the drilling, construction and installation of the wells would generally include an area less than one-quarter acre in size. Upon completion of well installation, a pumphouse would be constructed approximately 10'x15' or 150 square feet and the surrounding disturbed land would be restored to its original condition. The total potential conversion of prime farmland is roughly 300 square feet (for both well sites). However, the installation of the wells would be for agricultural irrigation and water supply purposes, an allowable facility within an agricultural zone that is necessary and compatible with the agricultural operations, therefore, impacts are less than significant.

- b) *Less Than Significant.* Potential well sites A-1, A-3 and A-4 are located in areas zoned Agricultural Exclusive-Agricultural Preserve (EA-AP). Potential well site A-2 and refurbished well RW-1 are located in an area zoned Upland Agricultural District-Agricultural Preserve (UA-AP). Refurbished well (RW-2) is located in an area zoned Exclusive Agricultural District-Special Building Site Combining District (EA-B:871).

The placement of the potential well sites has been determined based on their location within the DCID boundaries, proximity to the District's water distribution facilities (ditches and canals), and ability to better serve the District's agriculture properties downstream or in the western portion of the District.

The potential well sites would occur within areas that are either used for 1) agricultural support activities, such as agricultural production staging, equipment parking and turnaround areas, and maintenance buildings, or 2) adjacent to areas in agricultural production. The staging area associated with the drilling, construction and installation of the groundwater wells would be limited to an area of less than one-quarter acre in size. Upon completion of the well installation, the surrounding disturbed land would be restored to its original condition and the wellhead and pumphouse would occupy an area of approximately 10'x15' or 150 square feet or less. Groundwater wells are a necessary and associated agricultural facility; therefore, the project does not conflict with existing zoning or a Williamson Act contract, and will not involve other changes that could result in the conversion of land to a non-agricultural use. Therefore impacts are considered less than significant.

- c, d)** *No Impact.* Proposed wells would not be located in areas that are zoned as forest land, timberland, or areas zoned for timber production. The project would not result in the lost of forest land or conversion of forest land to a non-forest use because these land uses are not located adjacent to project areas. Therefore, the project has no impact on forest land resources.
- e)** *No Impact.* As stated in the discussion items a) and b) above, the project will not result in the conversion of any farmland, does not conflict with existing zoning or a Williamson Act contract, and will not involve other changes in the existing environment that could result in the conversion of farmland to a non-agricultural use. In addition, as stated in discussion items c, d) above, the project will not result in the conversion of any forest land, timberland, or land zoned as timberland production, and will not involve other changes in the existing environment that could result in the conversion of forest land to a non-forest use. Therefore, there are no impacts to agricultural and forest land resources.

3. AIR QUALITY:

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a)** *No Impact.* Tehama County is currently in non-attainment for particulate matter (PM₁₀) and Ozone. The 2003 *Air Quality Attainment Plan* focuses on the adoption and implementation of control measures for stationary sources, area wide sources, and indirect sources, and addresses public education and information programs. The project would not conflict with any of the growth assumptions made in the preparation of these plans nor obstruct implementation of any of the proposed control measures contained in these plans. Therefore, no impact to the implementation of applicable air quality plans would result from the proposed project.

b, c & d) Less Than Significant. The proposed project includes development of two groundwater wells, water conveyance pipelines and pumphouses. Power to the wells would be electricity. During construction, drilling and installation of the wells, motor exhaust associated with drilling and movement of construction equipment and worker trips, especially on unpaved surfaces, could generate PM₁₀ emissions. Specifically, PM₁₀ emissions could result from windblown dust (fugitive dust) generated during grading activities. Fine particulate matter is the pollutant of greatest concern with respect to construction activities. Exhaust emissions from construction equipment would contain reactive organic gases (ROG), nitrogen oxides (NOX), and carbon monoxide (CO). Construction-generated emissions are short term, lasting only as long as construction activities occur and are influenced by the amount of ground disturbance associated with construction. It is estimated that construction of each well would take approximately two to three weeks and would result in a construction disturbance area of less than one-quarter acre (typically 100'x100').

In a conversation with a representative from the Tehama County Air Pollution Control District (APCD) due to the short duration of construction and the relatively small area of disturbance (less than one-quarter acre), a fugitive dust permit would not be required. The APCD stated that as long as any vegetation that needs to be removed for access, grading and drilling activities is not burned, impacts would be considered less than significant (Loeser, 2008).

e) No Impact. During construction various diesel-powered vehicles and equipment in use at the well sites could create odors. These sources are mobile and transient in nature and the emissions would occur at a substantial distance from nearby receptors (which provides for dilution of odor-producing constituents); the nearest residence is approximately 200 feet from Well A-4. These odors would be temporary and unlikely to be noticeable beyond the construction area boundaries. Therefore, no impact is anticipated.

4. BIOLOGICAL RESOURCES:

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4. BIOLOGICAL RESOURCES:

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

NOAA-NMFS Biological Opinion

On June, 4 2009, the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NMFS) issued a final biological opinion (Opinion) based on its review of the proposed long-term operations of the Central Valley Project and State Water Project and their effects on listed anadromous fishes and marine mammal species, and designated and proposed critical habitats, in accordance with section 7 of the Endangered Species Act (ESA). As part of the Opinion, Essential Fish Habitat (EFH) Conservation Recommendations for Pacific Coast Salmon species, including spring-run Chinook salmon and steelhead, were also identified. The Opinion was determined based on the information presented in the OCAP-BA.

Delta Fish Agreement 2008 Amendment OCAP-BA

As per the 2008 Amendment, DWR and DFG shall work together in coordination with the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to continue funding and implementation of mitigation actions. The 2008 Amendment mitigation actions are identified as “conservation actions” in the OCAP-BA and include ongoing annual conservation actions (Ongoing Actions), accepted conservation actions (Early Implementation Actions) and additional actions (Other Potential Conservation Actions). The proposed Deer Creek Flow Enhancement Project (DCFEP) is funded under the Delta Fish Agreement (USDI, 2008) and identified as an “ongoing conservation action” in the OCAP-BA.

The OCAP-BA Appendix Y, hereby incorporated by reference, describes proposed conservation actions; action areas; best management practices; avoidance and minimization measures; adaptive management strategy; status of species; effects of the proposed actions on federally listed species; cumulative effects; determinations; and references. As part of the 2008 Amendment, each conservation action identified in the 2008 Amendment will undergo its own project-specific consultation with DFG, USFWS and NMFS, as appropriate. As per the 2008 Amendment a number of Best Management Practices (BMPs) will be implemented to avoid and minimize potential impacts to endangered and threatened species. The OCAP-BA Best Management Practices are provided in Appendix C of this document. The complete document is

available online at http://www.usbr.gov/mp/cvo/ocap_page.html or at the Northern Region DWR office (2440 Main Street, Red Bluff, CA 96080).

OCAP-BA Best Management Practices

The OCAP-BA identifies specific BMPs to be implemented associated with the DCFEP. Provided in Appendix C of this document, the BMPs include:

- General BMPs
- Aquatic and Wetland Species/Water Quality,
- Vernal Pool Plants (if access to wells or monitoring areas will occur near vernal pool habitat)
Vernal Pool Branchiopods (if access to wells or monitoring areas will occur near vernal pool habitat)
- Valley Elderberry Longhorn Beetle Plants (if access to wells or monitoring areas will occur near habitat)
- Giant Garter Snake

Based upon site specific biological surveys and information presented in the Biological Resources Assessment for this project and Addendum Letter (Appendices D and E, respectively), the BMPs identified in the OCAP-BA (USDI, 2008) associated with Aquatic and Wetland Species, Vernal Pool Plants, Vernal Pool Branchiopods and giant garter snake are not applicable to the project since associated habitat is not present at the proposed well sites.

OCAP-BA Status of the Species and Effects of the Proposed Programmatic Action

The OCAP-BA identifies all federally listed species that have some potential to occur within the Delta Fish Agreement 2008 Amendment action area. Since the DCFEP is an identified conservation action within the 2008 Amendment and addressed in the OCAP-BA, the DCFEP has the potential to affect identified species or critical habitat designated for these species. **Table A** lists the federally listed species identified in the OCAP-BA Appendix Y that have the potential to occur within the project area as well as California Special-Status Species that have the potential to occur within the vicinity of the proposed project area. **Table A** also describes the affects of the 2008 Amendment DCFEP conservation action on these species as described in the OCAP-BA Appendix Y.

According to the OCAP-BA Appendix Y, the most significant effects of the Delta Fish Agreement 2008 Amendment conservation actions on the listed fish species will be substantial habitat enhancements that are specifically focused on increasing habitat, enhancing habitat conditions, improving access to habitat and protecting individual fish. However, because habitat restored for target fish species may not be consistent with habitat for other species, the potential for these actions to result in potential adverse effects on these species is minimized or avoided through the implementation of BMPs.

Biological Resources Assessment

A Biological Resources Assessment (BRA), subsequent Addendum Letter, and updated BRA Table 1 were prepared to summarize the general biological resources at each of the potential well sites, assess the suitability of each site to support special-status species and sensitive habitat types, and evaluate potential impacts to biological resources (Appendices D-F). The purpose of the Addendum Letter was to specifically evaluate potential impacts to Central Valley spring-run Chinook salmon (Appendix E). Table 1 of the BRA (Appendix F) was updated per comments received by the Department of Fish and Game, on February 22, 2010 and January 29, 2009.

It should be noted that with regard to the proposed installation of groundwater supply wells, no construction activities would occur in or around Deer Creek. All construction activities associated with the installation of groundwater wells would occur within or immediately adjacent to areas currently used for agricultural purposes.

Special-Status Species

Special-status species are plant and animal species that have been afforded special recognition by federal, state, or local resource agencies or organizations. Listed and special-status species are of relatively limited distribution and may require specialized habitat conditions. Special-status species are defined as meeting one or more of the following criteria:

- Listed or proposed for listing under California Endangered Species Act (CESA) or Federal Endangered Species Act (FESA);
- Protected under other regulations (e.g. Migratory Bird Treaty Act);
- DFG Species of Special Concern;
- Listed as species of concern by California Native Plant Society (CNPS) or USFWS; or
- Receive consideration during environmental review under CEQA.

Special-status species considered in the BRA are based on queries of the CNDDDB, the USFWS and CNPS species lists (online versions) for the *Vina* and *Richardson Springs NW 7.5* minute series quadrangles. These species lists include all potentially occurring special-status species known to occur within the two quads mentioned and additional 8 quads surrounding both *Vina* and *Richardson Springs NW*. The BRA, includes the common name and scientific name for each of the species, their regulatory status (federal, state, local, CNPS), habitat descriptions, and potential for occurrence at proposed well sites. The BRA also depicts the locations of special-status species recorded in the CNDDDB within five miles of the project vicinity (10-mile radius for Swainson's hawk) and designated critical habitat within the vicinity of the project area. The following set of criteria has been used to determine each species' potential for occurrence at each well site:

- **Present:** Species is known to occur on the site, based on CNDDDB records, and/or was observed onsite during the field survey(s).
- **High:** Species is known to occur on or near the site (based on CNDDDB records within five miles, and/or based on professional expertise specific to the site or species) and there is suitable habitat onsite.
- **Low:** Species is known to occur in the vicinity of the site, and there is marginal habitat onsite.-
OR-Species is not known to occur in the vicinity of the site, however there is suitable habitat onsite.

- **No:** There is no suitable habitat for the species onsite.-**OR-**Species was surveyed for during the appropriate season with negative results.

Table A below identifies the federally listed species identified in the 2008 Amendment OCAP-BA as well as the special-status species that are either “present” or have a “high” or “low” potential for occurring within the proposed well site locations. A complete list of all species that have the potential to occur within a 5-mile radius of the project area is presented in the BRA (Appendices D-F).

Listed and Special-Status Plants

According to the BRA prepared for this project, a records search of the California Native Plant Society (CNPS), California Natural Diversity Data Base (CNDDDB), and the USFWS list, special-status plant species have the potential to occur within the project vicinity. However, based on site surveys and literature review specific to the special-status plants listed in the BRA, no special-status plant species have the potential to occur at the proposed well sites, or be affected by the drilling and installation of wells.

Listed and Special-Status Animals

Based on a records search of the CNDDDB and the USFWS list, special-status animal species have the potential to occur at the location of, or in the vicinity of, potential well sites. Based on field observations and literature review specific to the special-status animals listed in the BRA, the potential for occurrence has been determined for each species.

Species Present or with a High Potential for Occurrence

Species that are known to be present or that are considered to have a high potential to occur within the vicinity of potential well sites are regionally occurring raptors (hawks, owls and vultures), and other migratory birds.

Species with a Low Potential for Occurrence

The species that are considered to have a low potential to occur within or adjacent to the proposed project well sites include valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Swainson’s hawk (*Buteo swainsoni*), western burrowing owl (*Athene cunicularia hypugaea*), white-tailed kite (*Elanus leucurus*), and yellow warbler (*Dendroica petechia*).

California Species of Special Concern

Several mammal species listed by DFG as California Species of Special Concern have potential to occur within the Deer Creek area. These include the deer mouse mountain lion, ringtail, vagrant shrew, dusky footed wood rat, California vole, and spotted bat. These animals may occur in the riparian habitats associated with the Deer Creek stream corridor. However, because well installation would occur outside the riparian corridor, there is no potential to impact habitat or to “take” species as defined by DFG. Therefore, no further discussion of these species is necessary.

The project proposes to bypass 10 cfs of water to provide a base flow for fish transportation; this would have beneficial effects to the recovery of spring-run Chinook salmon and steelhead. Therefore, no impacts to Deer Creek or the riparian corridor would occur. Potential impacts to species associated with groundwater well installation and operation activities have been discussed further in the Impact Analysis

discussion below. Proposed well sites are located outside the riparian corridor and adjacent to areas used for agricultural production and/or maintenance and support activities.

In addition, the potential for the occurrence of neotropical migratory birds occurs throughout the project vicinity. The riparian corridor associated with Deer Creek supports a dense canopy of cottonwood trees and an understory of willow trees, poison oak, blue elderberry, Himalayan blackberry and other riparian species. This habitat type provides ideal cover for many species of birds, however no impacts to the riparian corridor will occur. The well sites are all located outside the riparian corridor and adjacent to areas used for agricultural production and/or maintenance and support activities. Therefore, no further discussion of these species is necessary.

The California vole, black-tailed jack rabbit, brush rabbit, greater white fronted goose, California quail, California towhee, northern leopard frog and striped racer appear on lists of special status species that may appear in the habitat types within the project area. These species are only listed in specific areas of the state outside of Tehama County; therefore they would not need to be considered when analyzing impacts for this project.

Table A – Federally Listed and California Special-Status Species Potentially Occurring on or in the Vicinity of the Deer Creek Flow Enhancement Program Area in Tehama County, CA

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence <i>(as observed during field surveys as part of the preparation of the BRA)</i>
Plants				
Greene’s Tuctoria <i>Tuctoria greenei</i>	FE;--;--;1B	Vernal pools between 30-1070 meters.	May-Jul(Sept)	No. No suitable habitat occurs in the study areas for each potential well site.
According to the OCAP-BA, the DCFEP could result in adverse effects to only a fraction of the populations of Greene’s Tuctoria and the 2008 Amendment conservation actions would not jeopardize the continued existence of Greene’s Tuctoria. It is expected that the project will implement the BMPs described in the OCAP-BA to avoid and minimize adverse effects to this species (OCAP-BA, Appendix Y, pages Y-108 to Y-109). However, field surveys conducted for the proposed project and summarized in the BRA (Appendix D and F) determined that no suitable habitat for Vernal pool habitat that would support this species is located within the area of each potential well site.				
Hairy Orcutt Grass <i>Orcuttia pilosa</i>	FE;--;--;1B	Vernal pools, typically ones with long inundation periods.	May-Sept	No. No suitable habitat occurs in the study areas for each potential well site.
According to the OCAP-BA, the DCFEP could result in adverse effects to only a fraction of the populations of Hairy Orcutt Grass and the 2008 Amendment conservation actions would not jeopardize the continued existence of Hairy Orcutt Grass. It is expected that the project will implement the BMPs described in the OCAP-BA to avoid and minimize adverse effects to this species (OCAP-BA, Appendix Y, pages Y-104 to Y-105). However, field surveys conducted for the proposed project and summarized in the BRA (Appendix D and F) determined that no suitable habitat for Vernal pool habitat that would support this species is located within the area of each potential well site.				
Hoover’s Spurge <i>Chamaesyce hooveri</i>	FT;--;--;1B	Vernal pools.	Jul-Sept (Oct)	No. No suitable habitat occurs in the study areas for each potential well site.
According to the OCAP-BA, the DCFEP could result in adverse effects to only a fraction of the populations of Hoover’s Spurge and the 2008 Amendment conservation actions would not jeopardize the continued existence of Hoover’s spurge. It is expected that the project will implement the BMPs described in the OCAP-BA to avoid and minimize adverse effects to this species (OCAP-BA, Appendix Y, pages Y-102 to Y-104). However, field surveys conducted for the proposed project and summarized in the BRA (Appendix D and F) determined that no suitable habitat for Vernal pool habitat that would support this species is				

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence (as observed during field surveys as part of the preparation of the BRA)
located within the area of each potential well site.				
Slender Orcutt Grass <i>Orcuttia tenuis</i>	FT;--;--;1B	Vernal pools, typically ones with long inundation periods.	May-Sept	No. No suitable habitat occurs in the study areas for each potential well site.
According to the OCAP-BA, the DCFEP could result in adverse effects to only a fraction of the populations of Slender Orcutt Grass and the 2008 Amendment conservation actions would not jeopardize the continued existence of Slender Orcutt Grass. It is expected that the project will implement the BMPs described in the OCAP-BA to avoid and minimize adverse effects to this species (OCAP-BA, Appendix Y, pages Y-106 to Y-107). However, field surveys conducted for the proposed project and summarized in the BRA (Appendix D and F) determined that no suitable habitat for Vernal pool habitat that would support this species is located within the area of each potential well site.				
Invertebrates				
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	FE; --; --; --	Vernal pools, swales, and ephemeral freshwater habitat. Typically occur in large, deep, turbid, long-standing pools.	Identified through UFWS protocol-level wet-season sampling and/or dry season cyst identification.	No. No suitable habitat occurs in the study areas for each potential well site.
According to the OCAP-BA, Conservancy fairy shrimp have been documented in the Vina Plains Preserve area in Tehama and Butte Counties, immediately south of the DCFEP project area. Although the Deer Creek project focuses primarily on maintaining instream flows by reducing surface water diversions, the proposed project does include the drilling of groundwater wells, operation and maintenance of those wells, surface water and groundwater monitoring, and fisheries assessment monitoring. The Conservancy fairy shrimp is known from only eight locations (USFWS 2007a), thus impacts on the species at any one location could have population-level effects. However, the implementation of the OCAP-BA BMPs for this and other vernal pool species would not jeopardize the continued existence of the species. Implementation of BMPs would avoid adverse effects to this species (OCAP-BA, Appendix Y, pages Y-114 to Y117). However, field surveys conducted for the proposed project and summarized in the BRA (Appendix D and F) determined that no suitable habitat for Conservancy fairy shrimp is located within the area of each potential well site.				
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT; --; --; --	Associated with its host plant elderberry shrubs (<i>Sambucus</i> spp.).	Best observed February through April.	Low. Several shrubs occur within 100 feet of potential well A2 Edson Property, but they are isolated and show no evidence of beetle occurrence.
The valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>) (VELB) depends on elderberry shrubs for its entire lifecycle. Adults are typically active from March through May during the flowering period of the elderberry shrub. The female lays its eggs on the leaves and stems of the elderberry shrub. The larvae emerge within a few days and burrow into the elderberry stem. The larvae feed on the stem pith until they pupate. When the host shrub begins flowering, the pupa emerges from the stem as an adult creating exit holes on the stem (Barr 1991).				
Typically, the beetles are found on elderberry shrubs within riparian plant communities. Some studies have found that multiple elderberry shrubs clumped together provide superior habitat for the beetle while isolated elderberry shrubs are less likely to support beetle populations (Collinge et al. 2001). Typical plant species that co-occur with the elderberry shrubs include California sycamore (<i>Platanus racemosa</i>), willows (<i>Salix</i> sp.), blackberry (<i>Rubus</i> sp.), and poison oak (<i>Toxicodendron diversilobum</i>) (USFWS 1984). Beetles require elderberry stems with a basal diameter of at least 1 inch in order for the larvae to utilize the stems (USFWS 1999).				
According to the OCAP-BA, this species could potentially be present in the DCFEP action area. The VELB is known from numerous locations and collectively, the 2008 Amendment actions could result in adverse effects to only a fraction of the populations of this species. Implementation of conservation actions would nto jeopardize the continued existence of VELB.				

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence (as observed during field surveys as part of the preparation of the BRA)
Implementation of the OCAP-BA BMPs for this species would avoid and minimize adverse effects to this species (OCAP-BA, Appendix Y, pages Y-123 to Y124).				
Four relatively isolated elderberry shrubs were located in the vicinity of the potential well site A-2. Though shrubs had stems greater than 1-inch in basal diameter, no evidence of the VELB was observed (i.e. exit holes on the stems) at the time of the survey. The implementation of Mitigation Measure 4-4 would reduce potential impacts to a less than significant level.				
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT; --; --; --	Vernal pools, swales, and ephemeral freshwater habitat.	Identified through UFWS protocol-level wet-season sampling and/or dry season cyst identification.	No. No suitable habitat occurs in the study areas for each potential well site.
According to the OCAP-BA, vernal pool fairy shrimp have been documented in the Vina Plains Preserve area in Tehama and Butte Counties, immediately south of the DCFEP project area. Although the Deer Creek project focuses primarily on maintaining instream flows by reducing surface water diversions, the proposed project does include the drilling of groundwater wells, operation and maintenance of those wells, surface water and groundwater monitoring, and fisheries assessment monitoring. The vernal pool fairy shrimp is known from multiple locations (USFWS 2007b). Collectively, 2008 Amendment conservation actions could result in adverse effects to only a fraction of the populations of this species, and thus would not jeopardize the continued existence of the species. Implementation of BMPs avoid and minimize adverse effects to this species (OCAP-BA, Appendix Y, pages Y-117 to Y119). However, field surveys conducted for the proposed project and summarized in the BRA (Appendix D and F) determined that no suitable habitat for Vernal pool fairy shrimp is located within the area of each potential well site.				
Vernal pool tadpole shrimp <i>Lepidurus packardi</i>	FE; --; --; --	Vernal pools, swales, and ephemeral freshwater habitat.	Identified through UFWS protocol-level wet-season sampling and/or dry season cyst identification.	No. No suitable habitat occurs in the study areas for each potential well site.
According to the OCAP-BA, vernal pool tadpole shrimp have been documented in the Vina Plains Preserve area in Tehama and Butte Counties, immediately south of the DCFEP project area. Although the Deer Creek project focuses primarily on maintaining instream flows by reducing surface water diversions, the proposed project does include the drilling of groundwater wells, operation and maintenance of those wells, surface water and groundwater monitoring, and fisheries assessment monitoring. The vernal pool tadpole shrimp is known from multiple locations (USFWS 2007b). Collectively, 2008 Amendment conservation actions could result in adverse effects to only a fraction of the populations of this species, and thus would not jeopardize the continued existence of the species. Implementation of BMPs would avoid and minimize adverse effects to this species (OCAP-BA, Appendix Y, pages Y-120 to Y122). However, field surveys conducted for the proposed project and summarized in the BRA (Appendix D and F) determined that no suitable habitat for Vernal pool tadpole shrimp is located within the area of each potential well site.				
Amphibians/Reptiles				
Giant garter snake <i>Thamnophis gigas</i>	FT; CT; --; --	Agricultural wetlands and other wetlands such as irrigation and drainage canals, low gradient streams, marshes, ponds, sloughs, small lakes, and their associated uplands.	April-October; Over-winters/hibernates subsurface during November - March	No. No suitable habitat occurs in the study areas for each potential well site.
According to the OCAP-BA, the 2008 Amendment conservation actions are very near the limit of the species' range. However, the OCAP-BA analysis took a conservative approach and presumed the species to be potentially present. The OCAP-BA indicates that there is a low potential for impacts to individual snakes during activities associated with drilling of wells and the movement of equipment, vehicles and project personnel. Implementation of BMPs would avoid and minimize adverse effects to				

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence (as observed during field surveys as part of the preparation of the BRA)
this species (OCAP-BA, Appendix Y, pages Y-154 to Y156). However, site specific surveys conducted as part of the project BRA determined that no suitable habitat occurs in the study area for each potential well site.				
Fish				
Central Valley spring-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	FT; CSC; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Spring run	Known. Salmon occur in Deer Creek, however no suitable habitat occurs in the study area at potential well sites where well installation activities would occur.
According to the OCAP-BA, the 2008 Amendment conservation actions, including the DCFEP is intended to provide salmonid passage flows for adult spawners and juvenile outmigrants. The DCFEP would improve access by salmonids to and from approximately 25 miles of Deer Creek upstream from the Stanford Vina Diversion Dam. The main components of the program include the development of supplemental water supply, implementation of agricultural water use efficiency improvements (not part of the proposed project) and the incorporation of groundwater monitoring and fish passage assessment monitoring. The OCAP-BA considers these actions to be beneficial to the recovery of spring-run Chinook salmon. While the OCAP-BA acknowledges that there may be short-term adverse effects as a result of physical disturbance, noise, sedimentation, and accidental spills from project implementation, the net effect of the DCFEP will be overwhelming improvements to habitat conditions. BMPs identified in the OCAP-BA as well as mitigation measures identified in this CEQA document minimize and reduce potential impacts to less than significant levels.				
Central Valley steelhead <i>Oncorhynchus mykiss</i>	FT;--; --; --	Coastal basins from the Russian River, south to Soquel Creek, and San Francisco and San Pablo Bay basins. Excludes the Sacramento-San Joaquin River basins.	Year-round	Known. Steelhead occur in Deer Creek, however no suitable habitat occurs in the study area at potential well sites where well installation activities would occur..
According to the OCAP-BA, the 2008 Amendment conservation actions, including the DCFEP is intended to provide steelhead passage flows for adult spawners and juvenile outmigrants. The DCFEP would improve access by steelhead to and from approximately 25 miles of Deer Creek upstream from the Stanford Vina Diversion Dam. The main components of the program include the development of supplemental water supply, implementation of agricultural water use efficiency improvements (not part of the proposed project) and the incorporation of groundwater monitoring and fish passage assessment monitoring. The OCAP-BA considers these actions to be beneficial to the recovery of steelhead. While the OCAP-BA acknowledges that there may be short-term adverse effects as a result of physical disturbance, noise, sedimentation, and accidental spills from project implementation, the net effect of the DCFEP will be overwhelming improvements to habitat conditions. BMPs identified in the OCAP-BA as well as mitigation measures identified in this CEQA document minimize and reduce potential impacts to less than significant levels.				
Birds				
Long-eared Owl <i>Asio otus</i>	--;CSC;--;--	Riparian habitat required; also uses live oak thickets and other dense stands of trees.	Year-round	Moderate. Suitable habitat occurs throughout the study area.
Northern Harrier <i>Circus cyaneus</i>	--;CSC;--;--	Typically inhabits marshes, oak savannahs, wetlands, or grasslands.	Year-round	Present. Observed foraging adjacent to the RW-2 Knox Well site.
The northern harrier is a large gray or brown raptor species that are usually year-round residents in California. Northern harriers typically inhabit marshes, oak savannahs, wetlands, or grasslands. Some individuals from other areas will over-winter in California. Nests are typically built on the ground or in low shrubs. Northern harriers feed on small mammals, reptiles, and insects. It is considered a California Species of Special Concern by the California Department of Fish and Game. Although there are no records in the CNDDB for this species within five miles of the site, this species was observed foraging at the RW-2 Knox Well site during the field assessment. Therefore, Mitigation Measure MM 4-1 is recommended, which reduces potential impacts				

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence (as observed during field surveys as part of the preparation of the BRA)
to a less than significant level.				
Short-eared Owl <i>Asio flammeus</i>	--;CSC;--;--	Open fields, meadows and marshes.	Year-round	Moderate. Suitable habitat occurs throughout the study area.
Swainson's hawk <i>Buteo swainsoni</i>	-- ; CT; -- (Nesting)	Nests in isolated trees or riparian woodlands adjacent to suitable foraging habitat (agricultural fields, grasslands, etc.).	March 20 -April 20 and June 10-July 30 optimum to locate nests; resident March-Sept	Low. Documented occurrence within 5-miles of site; although nest sites are not "active" and latest documented occupied nest within 5 miles was in 1996.
<p>Swainson's hawk is a long-distance migrant with nesting grounds in western North America. The Swainson's hawk population that nests in the Central Valley winters primarily in Mexico, while the population that nests in the interior portions of North America winters in South America (Bradbury et al. in prep.). Swainson's hawks arrive in the Central Valley between March and early April to establish breeding territories. Breeding occurs from late March to late August, peaking in late May through July (Zeiner et al. 1990). In the Central Valley, Swainson's hawks nest in isolated trees, small groves, or large woodlands next to open grasslands or agricultural fields. This species typically nests near riparian areas; however, it has been known to nest in urban areas as well. Nest locations are usually in close proximity to suitable foraging habitats, which include fallow fields, annual grasslands, irrigated pastures, alfalfa and other hay crops, and low-growing row crops. Swainson's hawks leave their breeding grounds to return to their wintering grounds in late August or early September (Bloom and Van De Water 1994).</p> <p>There are three records (greater than five years old) in the CNDDDB for this species within 10 miles of the site (CNDDDB 2008). This species was not observed at potential well site locations or in the vicinity during the field surveys. However, due to historical nesting within five miles of the site and the general lack of more recent regional survey data, there is a low potential for the bird to occur within ½ mile of well sites. Therefore, Mitigation Measure MM 4-1 is recommended, which reduces potential impacts to a less than significant level.</p>				
Western burrowing owl <i>Athene cunicularia hypugaea</i>	-- ; CSC; --; -- (Burrow Sites)	Nests in burrows in the ground, often in old ground squirrel burrows or badger, within open valley and foothill grassland and desert habitat.	Year-round	Low. Some potential for occurrence within 500-feet of well sites, but marginal habitat occurs. Not observed during survey.
<p>Western burrowing owl is a small ground-dwelling owl that occurs in western North America from Canada to Mexico, and east to Texas, and Louisiana. Although in certain areas of its range western burrowing owls are migratory, these owls are predominantly non-migratory in California (Zeiner et al. 1990). The breeding season for western burrowing owls occurs from February to August, peaking in April and May (Zeiner et al. 1990). Western burrowing owls nest in burrows in the ground, often in old ground squirrel burrows. This owl is also known to use artificial burrows including pipes, culverts, and nest boxes. Frequency of disturbance associated with mowing, harvesting, etc., lowers the potential for this species to occur.</p> <p>Although, there are no CNDDDB records for this species within five miles of the site (CNDDDB 2008) and no western burrowing owls or nesting burrows were observed during the biological assessment and site surveys, the species is known to occur regionally and suitable habitat, although marginal, for this species occurs within the vicinity of proposed well sites. The potential for burrowing owls to occur within proximity to potential well sites is considered low. Therefore, Mitigation Measure MM 4-2 is recommended, which reduces potential impacts to a less than significant level.</p>				
White-tailed kite <i>Elanus leucurus</i>	--;CFP;--;--	Fairly common in grasslands, farmlands, even highway median strips.	Year-round	Low. Potential for the species to nest in adjacent mature trees and utilize general study areas for foraging. Not known to occur within survey areas. Not observed during surveys.
<p>The White-tailed kite is a locally common resident throughout California where there is suitable habitat. Their population is scattered widely throughout California during the non-breeding season. They occur in low elevation grassland, agricultural,</p>				

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence (as observed during field surveys as part of the preparation of the BRA)
<p>wetland, oak-woodland, and oak-savannah habitats, and riparian areas adjacent to open areas (Small 1994). Nests are placed in trees and large shrubs, most nests are on habitat edges and are placed in the upper third of the tree (Dunk 1995). This species is considered both a California State Species of Special Concern and a Fully Protected Species (CDFG 2008). In recent years, this species has become increasingly less common in southern California. It is known to occur as a resident in the local area (Small 1994). Several potential well sites are situated adjacent to suitable nesting and foraging habitat for the species. However, this species is not known to occur within the site survey areas and it was not observed during site surveys; this species has a low potential for occurrence within the vicinity of proposed well sites.</p>				
<p>Yellow warbler <i>Dendroica petechia brewsteri</i></p>	<p>--;CSC;--;--</p>	<p>Favors wet habitats, especially willows and alders; open woodlands, gardens, and orchards.</p>	<p>April-Sept</p>	<p>Low. Some potential for the species to nest in adjacent trees or brush, and utilize general study areas for foraging; although, routine disturbance from agriculture activities might preclude the species nesting near several potential well sites. Not observed during surveys.</p>
<p>The yellow warbler was once considered a widespread and common nesting species in riparian areas throughout Southern California (Dunn and Garrett 1997); it is now considered locally common during the nesting season and is a common migrant in spring and fall (Dunn and Garrett 1997). They nest in wet, deciduous thickets, especially those dominated by willows, and in disturbed and early successional habitats, as well as in montane areas to 2,700 m (8,850 ft) along watercourses with riparian growth (Dunn and Garrett 1997). They nest from mid-May to early August (Lowther et al. 1999). The nest is a deep cup built of grasses and strips of bark covered with plant down and fine fibers placed in upright fork of bush, sapling, or tree, usually within 6 m (to 15 m) of the ground (Lowther et al. 1999). This species has been heavily impacted by degradation and destruction of riparian habitat by cattle grazing and human-related disturbances as well as by parasitism by the brown-headed cowbird (<i>Molothrus ater</i>). The yellow warbler is considered to be a California Species of Special Concern (CDFG 2008). Due to the presence of suitable nesting and foraging habitat within the vicinity of several potential well sites, this species has potential for occurrence. However, routine disturbance from existing agriculture activities might preclude the species from nesting near proposed well sites, therefore, this species has a low potential for occurrence. Although, this species was not observed during site surveys, there is a low potential for occurrence; therefore, Mitigation Measure MM 4-1 is recommended.</p>				
<p>Raptors (Hawks, Owls and Vultures), and Other Migratory Birds</p>	<p>MBTA(Migratory Bird Treaty Act); §3503.5 DFG Code</p>	<p>Nest in a variety of communities including cismontane woodland, mixed coniferous forest, chaparral, montane meadow, riparian, and urban communities.</p>	<p>Most nesting raptors are found in larger mature trees but some nest on the ground.</p>	<p>Present. Turkey vulture, red-tailed hawk, northern harrier, and American kestrel observed during survey. Trees adjacent to potential well sites present nesting opportunities; although, no existing nests were observed within 500-feet during surveys.</p>
<p>Raptor and migratory bird species are known to forage and nest within agricultural areas and are expected to occur within the vicinity of proposed well sites. While surveying the sites, red-tailed hawk (<i>Buteo jamaicensis</i>), northern harrier (<i>Circus cyaneus</i>), American kestrel (<i>Falco sparverius</i>), and turkey vulture (<i>Cathartes aura</i>) were observed foraging in proximity to proposed Project sites. Migratory birds including, western meadowlark (<i>Sturnella neglecta</i>) and white-crowned sparrow (<i>Zonotrichia leucophrys</i>) were also observed.</p>				
<p>Raptor and migratory bird nests are protected under the MBTA and raptors specifically, by Section 3503.5 of the California Fish and Game Code. Well sites A2 Edson Property, A3 Edson Property, A4 Fox Property, and A1 Pitter Property have the greatest potential to have raptor or migratory birds nesting within their vicinity. Therefore, Mitigation Measure MM 4-1 is recommended, which reduces potential impacts to a less than significant level.</p>				

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence <i>(as observed during field surveys as part of the preparation of the BRA)</i>
Federally Listed Species: FE = federal endangered FT = federal threatened	FC = candidate PT = proposed threatened FPD = proposed for delisting FD = delisted	California State Listed Species: CE = California state endangered CT = California state threatened CR = California state rare CSC = California Species of Special Concern CFP = California Fully Protected		CNPS* List Categories: 1A = plants presumed extinct in California 1B = plants rare, threatened, or endangered in California and elsewhere 2 = plants rare, threatened, or endangered in California, but common elsewhere 3 = plants about which we need more information 4 = plants of limited distribution Other Special-status Listing: SLC = species of local or regional concern or conservation significance
<i>Source: Foothill Associates, BRA, November 2008 and USDI, OCAP-BA, Appendix Y.</i>				

Impacts Analysis

a) *Less Than Significant Impact With Mitigation Incorporation.*

Raptors, Migratory Birds and Special Status Bird Species

A qualified biologist conducted site visits to each of the potential well sites on Friday, April 18, 2008. In addition a complete BRA was prepared in November 2008, which included subsequent site visit on October 30, 2008. While no special status bird species were observed during the site visits, suitable nesting and foraging habitat for migratory birds, including yellow warbler, and raptors, including northern harrier, Swainson’s hawk, and white-tailed kite, exists throughout the area.

To ensure compliance with the Migratory Bird Treaty Act, the following mitigation measure is proposed:

Mitigation Measures

MM4-1 Well drilling activities and vegetation removal should be performed outside of the nesting season, (February 1 to August 31). If construction activities occur during the nesting season, within two weeks prior to the commencement of construction activities, a qualified biologist shall conduct a focused pre-construction survey for raptors, migratory birds and special status bird species to identify active nests adjacent to well sites. Since Swainson’s hawk has been known to nest in the vicinity of the site (within a 10-mile radius), the survey areas for this species should extend to a ½ mile radius surrounding the site. If active nests are found, no drilling activities shall take place within 500 feet of the nest, or ½ mile if the nest is an active Swainson’s hawk nest, until the young have fledged and the nest is no longer active (as determined by a qualified biologist). However, depending on the migratory bird species, site conditions, and proposed construction activities near the active nest, a small buffer may be prescribed, as determined by the biologist. If construction activities are

proposed to occur during the non-breeding season (September 1-January 31), a survey is not required and no further studies are necessary.

MM4-2 A burrowing owl survey shall be conducted no more than 30 days prior to the onset of construction activities. Burrowing owls can be present during all times of the year in California, so this survey is should occur regardless of the time construction activities occur. If active owl burrows are located during the pre-construction survey, it is recommended that a 250 foot buffer zone be established around each burrow with an active nest until the young have fledged and are able to exit the burrow. In the case of occupied burrows without active nesting, active burrows after the young have fledged, or if construction commences after the breeding season (typically February 1-August 31), passive relocation of the birds should be performed. Passive relocation involves installing a one-way door at the burrow entrance, which encourages the owls to move from the occupied burrow. DFG should be consulted for current guidelines and methods for passive relocation of any owls found on the site. Mitigation for project impacts that result in relocation of burrowing owls and loss of burrows and/or foraging habitat may be required (DFG recommends 6.5 acres of foraging habitat for burrowing owl be preserved for each active burrow that would be impacted by project activities). DCID, in coordination with DFG, is responsible for prescribing appropriate mitigation for any project-related impacts to burrowing owls. These mitigation measures would only apply in the event that burrowing owls were encountered during the pre-construction survey.

Valley Elderberry Longhorn Beetle

Elderberry shrubs (*Sambucus mexicana*) were found near potential well sites A-2 and along the north/south access road leading to well site A-3. Valley elderberry longhorn beetle, a federal threatened species, is dependent solely on blue elderberry to complete its life cycle. The beetle occurs in the Central Valley of California below 3,000 feet. It is distributed primarily within riparian habitats from Shasta County to Kern County. The adult beetles emerge from the elderberry stems from April to June. The adults mate and the females lay eggs on the tips of twigs. The eggs hatch and the larva bore into twigs and feed on the pith. Before the larva pupates, it makes an exit hole in the elderberry stem. It is these holes that serve as an indication of the occurrence of VELB in elderberry shrubs. After pupation, the adult beetle emerges from the pupal skin and exits from the interior of the elderberry stem.

If potential well sites A-2 and A-3 are selected for the new water supply wells, the following mitigation measures are proposed:

Mitigation Measures

MM4-3 If proposed drilling activities occur within 100-feet of the elderberry plants, a minimum buffer of 20 feet from drip line will be implemented and strictly adhered to. By following VELB avoidance and protection measures, no adverse impacts to VELB are anticipated as a result of the proposed project. The following conditions shall be implemented to minimize impacts to the existing shrubs:

- 1) **Prior to the commencement of construction and drilling activities, range barrier fencing shall be placed 20 feet from the drip line of each shrub, and drilling personnel and/or activities will avoid areas inside of the fencing.**
 - 2) **No insecticides, herbicides, fertilizers, or other chemicals will be applied during drilling. All drainage water during and following drilling will be diverted away from the shrubs.**
 - 3) **Prior to commencement of construction and drilling activities, a preconstruction awareness class, conducted by a qualified biologist, for all workers and supervisors to inform them of avoidance measures as well as laws pertaining to VELB.**
- b) Potential well site, A-2 and refurbished well site, RW-1 are located adjacent to the Deer Creek riparian corridor, and is defined as Great Valley Mixed Riparian Forest. To avoid potential impacts to riparian habitat species, the following mitigation measure shall be applied if either of these sites are selected for drilling or refurbishment.

Mitigation Measure

MM4-4 Prior to commencement of drilling activities, a qualified biologist shall place an orange barrier fence along the perimeter of riparian habitat adjacent to where drilling is to occur to ensure drilling operations do not impact the riparian corridor or Deer Creek.

- c) *Less Than Significant.* One unlined, presumably natural drainage and associated hydrophytic vegetation was noted in the vicinity of the proposed A-4 well site.

This drainage is potentially regulated by the Army Corps of Engineers (Corps), Regional Water Quality Control Board (RWQCB), and CDFG. If project activities require the fill of any portion of this drainage, then the following regulatory procedures would be required.

- The feature would need to be formally delineated and verified and a pre-construction notification submitted to the Corps.
- Prior to construction, the appropriate Section 404 permit would be acquired for any project-related impacts to jurisdictional features. Any waters of the U.S. that would be lost or disturbed would be replaced or rehabilitated on a “no-net-loss” basis in accordance with the Corps’ mitigation guidelines. Habitat restoration, rehabilitation, and/or replacement would be at a location and by methods agreeable to the Corps.
- A Streambed Alteration Agreement would be obtained from DFG, pursuant to Section 1600 of the CDFG Code, for each stream crossing and any other activities affecting the bed, bank or associated riparian vegetation of the stream. If required, DCID would coordinate with CDFG in developing appropriate mitigation, and should abide by the conditions of any executed permits.
- If a 404 permit is required for the proposed project, water quality concerns during construction would be addressed in a Section 401 water quality certification from the Regional Water Quality Control Board.

However, no wetlands, including vernal pools, would be impacted as a result of well construction and drilling. Access to and from the proposed well locations will occur on existing roadways and agricultural maintenance roads and the well pads would exist entirely within or immediately adjacent to existing agricultural uses. No impacts have been identified, therefore no mitigation is required.

- d) *Less Than Significant.* No barriers to wildlife movement would be constructed as a result of drilling or well operations. Application of Mitigation Measures MM4-1 and MM4-2 would ensure that resident and migratory bird species would not be impacted during construction and installation of wells. This is a less than significant impact.

The fisheries monitoring referenced in the Fish Passage Assessment Plan refers to salmonid occurrence surveys which include underwater and ground observation techniques. For underwater surveys, specifically snorkeling, a 4(d) research authorization take permit is required. Harassment is minimized by making each survey a "one pass" event by no more than 2 observers. All salmon encountered are enumerated and included in DFG's 4(d) take limit for that year. To date, take has not been exceeded using snorkeling activities and is not expected to be exceeded with this monitoring activity. A current DFG 4(d) permit authorizes monitoring from April 14th through September 15th in Deer Creek, which includes the scope of this project.

In addition, the proposed project is intended to provide salmonid and steelhead passage flows for adult spawners and juvenile outmigrants. The DCFEP would improve access by salmonids and steelhead to and from approximately 25 miles of Deer Creek upstream from the Stanford Vina Diversion Dam. The OCAP-BA, and subsequent NOAA-NMFS Biological Opinion, considers these actions to be beneficial to the recovery of spring-run Chinook salmon and steelhead. The net effect of the DCFEP will be improvements to habitat conditions. Therefore, the proposed project would improve the movement of native resident and migratory fish species, and thus there is no impact.

- e-f) *No Impact.* The proposed project would not conflict with any local, regional, or state policy, ordinance or conservation plan in effect for the area. Hence, no impact to adopted habitat conservation plans or natural community conservation plan would occur with project implementation.

5. CULTURAL RESOURCES:

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. CULTURAL RESOURCES:

Would the project:

Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
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interred outside of formal cemeteries?

Impact Analysis

a- d) *Less Than Significant with Mitigation Incorporation.* The Tehama County General Plan Background Report summarizes historic and archaeological sites within the County. Traces of Native American societies have been found at two major archaeological sites: one, the “Los Molinos Vicinity – Ishi Site” in Deer Creek Canyon, and the other, the “Sulphur Creek Archaeological District” in the Mill Creek vicinity. Projectile tips, burial sites, examples of basketry, matting fragments, and other items related to Wintun Indian settlement life were found at those locations. Both areas are listed on the Federal Register of Historic Places. In addition to the two sites described above, excavations have uncovered several hundred prehistoric sites, including burial sites, west of the Sacramento River where the Nomlaki Tribe is known to have settled and north of the project area in the Redbank Reservoir in a site believed to be used by the Wintu (DCID, 2007). Additionally, over 250 settlement sites have been identified along the Sacramento River in Tehama County, as well as several along river tributaries in the foothill regions of the County.

The locations proposed for groundwater wells are either currently used for agricultural activities, including grazing land, orchards, or agricultural maintenance/access roads. These areas are highly disturbed. There are no known historic or archaeological resources located at each of the proposed well sites. However, although unlikely, there is the possibility that cultural resources could be located in the subsurface and project-related construction activities associated with the installation of the wells and associated pipelines could result impacts to undiscovered or unrecorded cultural resource sites. Therefore the following mitigation measures are provided. Impacts are considered less than significant with mitigation.

Mitigation Measures

MM5-1 **In the event that any paleontological, prehistoric or historic subsurface resources is discovered during construction related activities, all work within the drilling area (within 100-feet of the resource) shall be halted. The DCID and DWR shall consult with a qualified archaeologist to assess the significance of the find. If the find is determined to be significant by the archaeologist, then the DCID, DWR, the archaeologist, and a representative of the Native American community (if the discover is an aboriginal burial) shall meet to determine the appropriate course of action.**

MM5-2 **If human remains are discovered at any construction sites during construction, work at the specific well site where the remains have been uncovered will be suspended and the County coroner will be immediately notified. If the remains are determined by the County coroner to be Native American, the Native American Heritage Commission (NAHC) will be notified within 24 hours, and the guidelines of the NAHC will be adhered to in the treatment and disposition of the remains.**

6. GEOLOGY AND SOILS:

Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

a-c, f) *No Impact.* The most recent listing of cities and counties affected by the Alquist-Priolo Earthquake Fault Zoning Act does not include the project area or Tehama County (CGS, 1997). Also, according to the Draft General Plan Safety Element there are no active or potentially active faults located in Tehama County. In addition, the Safety Element states that,

Geologic hazards associated with seismic activity, such as liquefaction and seiche (earthquake generated waves), also have a low probability of occurring within Tehama County. Although no active faults are mapped in the county, there exists the potential for minor, localized earth shaking events as precursors to eruptive activity of Mount Lassen. The region of Tehama County may experience earth-shaking activity from seismic events that occur outside the county. A review of seismic activity over the past 100 years is included in the 1974 Seismic Safety Element and states the following: "The planning area (Tehama County) has experienced only minor earthquakes within the area and

secondary impacts from earthquakes centered out of the area. Projections of future impacts from seismic activity are from low to moderate.” (Tehama County, 2007b, pg 8.0-4)

In addition, according to the General Plan Background Report, no areas of subsidence have been identified in Tehama County (Tehama County, 2007a, page 9-10).

- d) *No Impact.* Generally the potential for landslides occurs along the banks of major watercourses and areas of steep slopes. Because the potential well locations are in areas located on generally flat, graded agricultural land, there are no potential impacts associated with landslides.
- e) *Less Than Significant Impact With Mitigation Incorporation.* The project may result in some soil erosion during well drilling and trench digging activities. Due to the relatively small size of the construction area for individual well sites (approximately 100x100 square feet) and necessary water conveyance pipelines extending from the well to DCID irrigation canals/ditches, minimal ground disturbance is expected. Thus, the potential for causing substantial soil erosion is low. However, the possibility does exist that the discharge of groundwater during well drilling, testing and development and/or surface runoff from the well and trench sites could result in soil erosion or loss of topsoil. To prevent this from occurring, DCID shall develop, rely on and implement best management practices to insure that groundwater pumped to the surface and surface runoff do not cause erosion or loss of topsoil.

Mitigation Measures

- MM6-1 DCID shall identify best management practices (BMPs) to insure that the discharge of groundwater pumped to the surface during the drilling, testing and development of any project well does not cause erosion downstream of the discharge point or loss of topsoil. This shall be accomplished by reducing the energy of discharge through an artificial energy dissipater or equivalent device. If substantial erosion or loss of topsoil occurs as a result of discharging groundwater from any project well, the erosion or loss of topsoil shall be restored to pre-discharge conditions.**
- MM6-2 DCID shall require that the construction contractor submit a grading and erosion control plan for the trenching to be performed during construction. This grading and erosion control plan shall identify which BMPs shall be used to prevent erosion and loss of topsoil which might occur as part of the trenching activities. If substantial erosion or loss of topsoil occurs as a result of trenching, the erosion or loss of topsoil shall be restored to pre-discharge conditions.**

Implementation of the above measure is deemed adequate to mitigate potential impacts associated with the water-related erosion of soil. No further mitigation is required.

- f) See discussion under **6a-c**, above.
- g) *No Impact.* The *USGS Swelling Clays Map of the Conterminous United States, Soil Map of California* identifies regions of expansive soils to exist within Tehama County. In the Coast Range region of western Tehama County soils with high swell potential exist. In the Central Valley region and low Sierra Foothill region of central Tehama County soils with slight to moderate swell potential exist, while the eastern part of the county consists of soils with little or no shrink-swell clays. Soils within the vicinity of the potential well locations are characterized as

Keefer loam (Km), Molinos fine sandy loam (My, Mzd), Molinos gravelly fine sandy loam (Mzs), Molinos complex (Mzt), and Vina loam (Vw). These soils tend to be well drained, slow to moderate permeability, and with negligible to rapid runoff and are not considered expansive soils. Since no impact has been identified, no mitigation is required.

- h) *No Impact.* The proposed project does not involve the use of septic tanks or alternative wastewater disposal systems. Since no impact has been identified, no mitigation is required.

7. GREENHOUSE GAS EMISSIONS

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact Analysis

- a-b) *Less Than Significant.* The state has implemented an emissions reduction program for greenhouse gasses in order to achieve a Year 2020 emissions target. Energy production and fossil fuel consumption emissions are to be reduced through a series of stringent manufacturer standards, increased incentives and penalties.

Implementation of the proposed project would not result in land use changes or subdivision or commercial developments. The TCAPCD recommends the consideration of vehicle trips generated when evaluating project-level conflicts with greenhouse gas emissions reduction goals. According to the agency’s CEQA Handbook, approximately 40% of the state’s greenhouse gas emissions are generated by vehicle exhaust. Installation and drilling equipment and staff vehicles used to travel between monitoring sites would be the only sources of exhaust emissions.

The emissions of greenhouse gasses generated by the proposed project would be temporary and negligible when compared to regional emissions. As discussed in the Air Quality Section, it is estimated that construction of each well would take approximately two to three weeks and would result in a construction disturbance area of less than one-quarter acre. Therefore, relative to greenhouse gas emissions, there would be less than significant potential impacts.

8. HAZARDS AND HAZARDOUS MATERIALS:

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

a-b) *Less Than Significant.* Activities associated with the drilling of groundwater wells include the use of lubricants and greases on site, which when improperly stored, could lead to minor spills. Motor vehicle fuels and oils could present a minor hazard if spillage occurs. The use and handling of chemicals during construction activities would occur in accordance with applicable federal, state, and local laws including California Occupational Health and Safety Administration (Cal OSHA) Requirements. Compliance with applicable laws and proper storage of hazardous materials would

minimize the potential for hazards to the public and/or accidental release of hazardous materials into the environment; therefore, impacts are considered less than significant.

Asbestos mineral groups can be found in naturally occurring rock formations. The presence of ultramafic rock indicates the possible existence of naturally occurring asbestos. Ultramafic rocks contain a high percent of dark-colored (iron-magnesium-silica) minerals and are formed in high temperature environments well below the earth's surface. The Tehama County Air Pollution Control District has adopted policies to reduce the effects of naturally occurring asbestos, specifically by reducing the use and sale of serpentine materials in the county. However, all ultramafic rock formations are west of the Sacramento River or of the Tehama County line; therefore, there are no ultramafic rock formations within the vicinity of the proposed project area. There are no impacts associated with naturally occurring asbestos.

- c) *No Impact.* The well sites are not located within one-quarter (1/4) mile of a school and no significant hazardous or toxic chemicals will be used that could result in significant harm to humans or to the environment. No impact can be identified and no mitigation is required.
- d) *No Impact.* None of the proposed well sites are to be located on sites which are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. As such, the proposed project is not forecast to result in a significant hazard to the public or the environment. No impact can be identified and no mitigation is required.
- e-f) *No Impact.* The proposed well sites are not located within an airport land use plan or within the vicinity of a public airport. There is a private airstrip, formerly the US auxiliary airfield, located southeast of the DCID boundaries. This airstrip is occasionally used by the landowner and not open to or available for use by the public. The project would not result in construction of land uses that would increase the population within the area or result in an increase in airport/airstrip associated hazards, no mitigation is required.
- g) *No Impact.* The proposed project would not block or restrict a designated evacuation route or access to an emergency facility. There is no impact to adopted emergency response plans or emergency evacuation plans.
- h) *No Impact.* The Tehama-Glenn Unit Fire Management Plan identifies the DCID as being within the boundaries of Battalion 2, which lies primarily within the Sacramento Valley and covers a large Local Responsibility Area (LRA). The Battalion generally covers the approaches to the eastern foothills, Vina Plains area, Los Molinos, City of Tehama, Dairyville, El Camino, Proberta, Antelope, and Bend communities. Assets at risk include the greatest concentration of residential, commercial, and industrial structures in Tehama County. Intermixed within the LRA are extensive areas of agricultural improvements such as orchards, cultivated fields, and associated outbuildings. Fast moving wind-driven fires in this area do minimal damage to the agricultural products but often threaten or involve the associated residences and outbuildings. Temporary construction activities involving the use of combustion engines and drilling equipment could result in increased risk of fire in the area; however, the construction contractor would clear the drilling site of all vegetation or other materials that could serve as fire fuel. Due to the existing agricultural setting and standard site preparation measures, no impacts are anticipated.

9. HYDROLOGY AND WATER QUALITY:

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a) Drilling and installation of the two groundwater wells or the refurbishment of two existing wells would disturb less than one-quarter acre of land for each well. The proposed project would require the grading of a construction and drilling staging area and the removal of vegetation, drilling activities would result in the stockpiling of soil and rock from boring activities. If well installation occurs during the rainy season (October – April) the installation of groundwater wells has the potential to result in erosion and/or siltation in DCID irrigation ditches/canals, thereby resulting in potentially significant impacts to water quality. Therefore, the following mitigation measure is proposed:

Mitigation Measure

MM9-1 If well drilling and installation takes place during the dry season, May through September, no erosion control measures are necessary. If well drilling and installation activities occur during the rainy season (October-April), the following erosion control measures and/or the functional equivalent shall be incorporated into well construction plans:

a) Install silt fence (or bio rolls / rock sock products) on the down-slope perimeter of all soil stockpiles and/or disturbed areas as applicable. Silt fence can treat a maximum of 100 square feet per lineal foot of fence.

b) Cover any stockpiled topsoil with plastic (or other impervious covering) or use a temporary seed mix. Use stockpiled topsoil as earthen berms to serve as temporary sediment basins.

c) Mulch all disturbed areas at the rate of one 50-pound bale of straw per 500 square feet, disc anchor as appropriate.

If drilling, construction and installation of the groundwater wells, which is expected to up to three months, occurs within the rainy season, implementation of the above erosion control measures or their functional equivalent, would reduce potential impacts to a less than significant level.

- b) *Less Than Significant Impact With Mitigation Incorporation.* Data from the 2003 and 2004 operation of the DCID Pilot Well indicate that groundwater may be pumped pursuant to the project parameters without impacts to existing agricultural and domestic wells. Nonetheless, the potential to deplete local groundwater supplies and/or lower local groundwater levels still exists.

To avoid any impacts to local groundwater supplies and groundwater levels, DCID will obtain and adhere to a Groundwater Extraction and Off-Parcel Use Permit required by Tehama County Ordinance 1617.

Further, DCID shall participate in a groundwater monitoring program that will include operational trigger-levels tied to pre-determined criteria that will limit groundwater level drawdown and groundwater quantity decline to protect third-party groundwater users against potential adverse impacts associated with the project. These pre-determined criteria will be included and made part of the Groundwater Extraction and Off-Parcel Use Permit issued by Tehama County.

The groundwater monitoring program will begin with the establishment of the Deer Creek Watershed Advisory Committee (“WAC”), which will be open to representatives from DCID, Tehama County AB 3030 Technical Advisory Committee, Tehama County health Agency, Northern Region of DWR, CDFG, UCD Agricultural Extension Farm Advisor, Deer Creek Watershed Conservancy, SVRIC, and private groundwater users not in either DCID or SVRIC but located in the lower Deer Creek Watershed. DCID and the WAC will identify key monitoring wells, based upon their construction, proximity to project wells, and their ability to represent groundwater levels in surrounding agricultural and domestic wells drawing from the upper Tuscan aquifer.

Once the key wells have been identified, an acceptable range of groundwater level fluctuation will be established by DCID and the WAC for each key well. The acceptable range will be established based upon (1) a review of historic seasonal fluctuation of groundwater levels in nearby domestic and groundwater wells, (2) estimated program-related decline in groundwater levels in nearby private wells, and (3) ability of nearby third-party groundwater users to maintain an adequate and affordable supply of good quality groundwater for agricultural and domestic use.

In order to have adequate time to identify and respond to any decline in groundwater levels associated with project pumping, the acceptable range limits will include three (3) warning stages. Each warning stage corresponds to a progressive increase in the decline of groundwater levels and represents further movement towards non-compliance with groundwater level criteria. Each warning stage also triggers a sequence of program management review and actions designed to alleviate any additional groundwater decline.

A Stage 1 Warning will occur when the static groundwater levels of any of the key monitoring levels falls below the Stage 1 warning level. In that event, response actions by DCID shall include an investigation into the possible causes for noncompliance with DWR and the development or recommend actions to regain compliance. All data and recommendations will be provided to the WAC within seven (7) days after the Stage 1 warning occurs. Recommended actions will focus on management actions, increasing groundwater level monitoring and reassessing the appropriateness of the groundwater level criteria.

A Stage 2 Warning will occur when static groundwater levels of any of the key monitoring wells falls below the Stage 2 warning level. In that event, response actions by DCID include an investigation into the possible causes for noncompliance with DWR and the development or recommend actions to regain compliance. All data and recommendations will be provided to the WAC within seven (7) days after the Stage 2 warning occurs. Recommended actions may include shutting down the project wells if a Stage 3 warning appears imminent. If progression to a Stage 3 warning does not appear imminent, recommended actions may include a partial shutdown of project wells during periods of peak interference with surrounding wells, or voluntary water conservation measures.

A Stage 3 Warning will occur when static groundwater levels of any of the key monitoring wells falls below the Stage 3 warning level. In that event, DCID shall terminate project related groundwater pumping. Groundwater level recovery data will be collected by DWR and presented to the WAC for review. DCID and DWR shall investigate the recovery from Stage 3 noncompliance levels, and develop recommended actions as to further project operation.

Groundwater levels in the key wells will be measured in both the project pumping period and the period of non-project pumping. When project pumping is not taking place, depth to groundwater will be measured at least three (3) times each year – once in April or May, once in July or August,

and once in October. Additionally, automatic groundwater level data will be collected at least six (6) times per day when the project wells are not operating. When the project wells are operating, the depth to groundwater will be collected from the key wells at least once a month from April through October, and automatically at least 12 times per day.

As an added check on the impacts of the project on groundwater levels, DWR shall monitor groundwater levels on both a County-wide and regional basis using existing groundwater level monitoring grids and wells. Such monitoring will help insure that no impacts to groundwater supply or levels beyond the area subject to monitoring by the key wells.

DCID's implementation of and adherence to this strict groundwater monitoring program, which is tied to action items designed to alleviate any impacts to groundwater supplies or levels, including complete shut-down of the project pumps, are deemed sufficient to reduce potential impacts to groundwater quantity and levels to a non-significant level.

Mitigation Measures

MM9-2 DCID shall continue to adhere to the strict groundwater monitoring program that was developed in conjunction with the WAC. The program shall continue to include operational trigger-levels that are tied to the pre-determined criteria that limit groundwater level drawdown and groundwater quantity decline, thus protecting third-party groundwater users against potential adverse drawdown impacts associated with the project. This program shall continue to be made a part of any Groundwater Extraction and Off-Parcel Use Permit issued by Tehama County.

- c) Refer to discussion **9a** above.
- d) *No Impact.* The proposed project is the installation of two groundwater wells that would include the construction of associated pumphouses, which are anticipated to be approximately 150 square feet in size. All other areas disturbed during construction of the wells would be returned to their previous agricultural use or natural condition. In addition, because the proposed well sites are located within or immediately adjacent to agricultural uses, the impervious surface created by the well site and pumphouses would be considered negligible and would not substantially alter existing drainage patterns that would result in flooding on- or off-site and would not contribute runoff which would exceed storm drainage systems. Since no impact is identified, no mitigation is necessary.
- e) Refer to discussion **9d** above.
- f) Refer to discussion **9a** above.
- g) *No Impact.* The proposed project does not propose any housing. As such, the proposed project will not place any housing within a 100-year flood hazard area. Since there is no impact, no mitigation is required.
- h) *No Impact.* Proposed Well A-2 and RW-1 is located in a FEMA Flood Zone A, which is an "area subject to a one percent or greater annual chance of flooding in any given year." However, no base flood elevations are shown. The remaining potential well locations are located in Zone C, which are areas designated as "areas of minimal flood hazard from the principal source of flood...and determined to be outside of the 0.2 percent annual chance floodplain." The

installation and operation of two groundwater wells would not impede or redirect flood flows or expose people or structures to a significant risk of loss, injury or death involving flooding. No impacts would result from the project, therefore no mitigation is required.

- i) Refer to discussion **9h** above.
- j) *No Impact.* The proposed project is not exposed to any inundation by seiche, tsunami, or mudflow at this location. Since there is no impact, no mitigation is required.

10. LAND USE AND PLANNING

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a-c) *No Impact.* The proposed installation of two new groundwater supply wells would not displace or divide an established community. Also, no zoning or land use designation changes would be required, as groundwater wells for irrigation purposes is an allowed use in agricultural zones. The proposed project would not conflict with any applicable habitat conservation plan or natural community conservation plan. No impacts have been identified, therefore no mitigation is necessary.

11. MINERAL RESOURCES

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

a-b) *No Impact.* The installation and operation of groundwater water supply wells would not result in the loss of availability mineral resources or locally-important mineral resources that would be of future value to the region and residents of the State. In addition, a majority of the lands within the DCID are under Williamson Act contract, therefore, these lands are designated to be used and maintained in agricultural production. No impacts to mineral resources would occur with implementation of the proposed project.

12. NOISE:

Would the project result in:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

a-b) *Less Than Significant With Mitigation Incorporation.* Noise generated from well drilling vehicles and activities would result in periodic increases in ambient noise levels in the vicinity of the construction site. Although these increases would be temporary, intermittent and limited to daytime hours, construction and installation of wells could cause short-term significant noise impacts to nearby noise-sensitive receptors. The well drilling and trenching activities would involve the use of certain noise-generating construction equipment. According to U.S. EPA data, drill rigs and pump engines typically produce 82-93 dB at a 50-foot distance, while compactors, front-loaders, backhoes, scrapers, and graders typically produce 72-95dB at a 50-foot distance.

Sensitive receptors located adjacent to potential well sites include single-family residential units located within 500 feet of proposed new well and refurbished well sites, these include: approximately 200 feet southwest and 300 feet southeast of well site A-4 at the Leininger Road and Reed Road intersection; approximately 400 feet west of well site A-1; and approximately 500 feet northeast of RW-2 at the intersection of Vina Road and Leininger Road. All other potential well sites are surrounded by agricultural land uses, with the nearest residence located no less than 1,200 feet to the nearest potential well site.

The following mitigation measures shall be applied to reduce potential noise impacts associated with construction activities:

Mitigation Measures

- MM12-1** Once drilling and boring activities are complete, construction activities will be limited to daylight hours, typically 7 a.m. to 7 p.m. on weekdays, and between 9 a.m. and 6 p.m. on Saturdays, and will not occur at all on Sundays or federal holidays except in case of emergency.
- MM12-2** All construction vehicles and fixed or mobile equipment shall be equipped with properly operating and maintained mufflers.
- MM12-3** All workers that will be exposed to noise levels greater than 75 dB over an eight-hour period will be provided with and required to wear adequate hearing protection devices to insure no hearing damage will result from the construction activities.

Implementation of these mitigation measures will be sufficient to reduce potential construction noise impacts to a less than significant level.

- c) *Less Than Significant With Mitigation Incorporation.* During daytime hours, operational noise impacts due to the pumps running at each well site are forecast to be negligible based upon the construction of a pumphouse to enclose each wellhead. However, because there are residential uses within 200 to 400 feet from well site A-4 and A-1, respectively, there is the potential for nighttime noise impacts when the proposed wells operate during the night. If well sites A-1 or A-4 are selected as the new well locations, the following mitigation measure is proposed:

Mitigation Measure

- MM 12-4** For well sites A-1 and/or A-4, DWR and DCID shall ensure that pumphouses located within 500 feet of a residence are constructed so that ambient nighttime exterior noise levels do not exceed 65 Ldn within a 100-foot radius of adjacent residences.
- d) *Less Than Significant With Mitigation Incorporation.* As outlined in response to **12a-b**, above, construction associated with well drilling and pipeline installation will have a temporary impact on ambient noise levels. The mitigation measures set forth in **12a-b** above are considered adequate to reduce the level of impact to less than significant.
 - e-f) *No Impact.* The project sites are not within an airport land use area or within the vicinity of a public airport. There is a private airstrip, formerly the US auxiliary airfield, located southeast of the DCID boundaries. This airstrip is occasionally used by the landowner and not open to or

available for use by the public. The project would not result in construction of land uses that would increase the population within the area or result in an increase in airport/airstrip associated noise. No impacts would occur, therefore, no mitigation is required.

13. POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

a-c) *No Impact.* This project does not propose the development of any new housing. Existing housing would not be affected by this project. The project is designed and intended to enable DCID to utilize groundwater as a substitute water supply for surface water bypassed from Deer Creek (which DCID is entitled to divert) for the purpose of preserving and enhancing fish migration during April-June and mid-October through mid-November. This project will have no impact on growth. Since no impact can be identified, no mitigation is required.

14. PUBLIC SERVICES:

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

14. PUBLIC SERVICES:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

a-e) *No Impact.* The proposed project includes the construction and installation of two groundwater wells, the refurbishment of two existing wells, or a combination thereof. The wells would provide a substitute water supply for up to 10 cfs of water bypassed from Deer Creek. Water would be used for irrigation purposes only within the boundaries of the DCID. Installation and operation of the wells does not involve any residential or commercial uses and would not induce population growth in the area. The proposed project would not generate new jobs or attract new residents to the area. Therefore, the proposed project would not result in any new or increased impacts related to fire protection, police protection, nearby schools, parks or other facilities, no mitigation is required.

15. RECREATION:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

a-b) *No Impact.* The proposed project would not cause any increase in demand for any recreational facilities in the project area since no increase in population would occur as a result of project implementation and operation. Since no impact can be identified, no mitigation is required.

16. TRANSPORTATION/TRAFFIC:

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

16. TRANSPORTATION/TRAFFIC:

Would the project:

freeways, pedestrian and bicycle paths, and mass transit??

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a) *No Impact.* The proposed project includes the development of two groundwater wells. The operation of the wells would require periodic routine maintenance and would result in no more than one trip per day, if that. Therefore, operation of the wells would not result in any new or increased impacts related to traffic. It is anticipated that construction and installation of the wells would take approximately two to three weeks. During this time, well drillers would access the well sites; however, the number of trips generated by employees would not be substantial and could be accommodated by existing roadways. In addition, the project would not conflict with an applicable plan, ordinance, or policy. Since no impact can be identified, no mitigation is required.
- b) *No Impact.* See response to **16a** above.
- c) *No Impact.* Construction and operation of the project has no potential to affect any air traffic patterns. Since no impact can be identified, no mitigation is required.
- d) *No Impact.* The proposed project does not involve the development of roadways. Access to the well sites would be provided by existing roads, (including agricultural maintenance roads for potential well sites A-2 and A-3 and refurbished well RW-1). The project would not increase hazards do to any design feature or incompatible use resulting from truck or maintenance equipment access. Since no impact can be identified, no mitigation is required.

- e) *No Impact.* The construction and installation of wells would use existing roadways for access to proposed well sites (refer to discussion **16d** above) and would not impede emergency access. Since no impact can be identified, no mitigation is required.
- f) *No Impact.* The proposed project has no potential to impact public transit, bicycle or pedestrian facilities' programs or policies, nor will the project decrease the performance or safety of such facilities. Since no impact can be identified, no mitigation is required.

17. UTILITIES AND SERVICE SYSTEMS:

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a) *No Impact.* The proposed project includes development of two new groundwater wells or the refurbishment of two existing wells. The project would not result in the construction or expansion of wastewater treatment facilities and would not exceed wastewater treatment requirements. Since no impact can be identified, no mitigation is required.
- b) *Less Than Significant.* The project includes the construction of new groundwater wells for the purpose of providing DCID with a substitute supply of water for irrigation when it bypasses

surface flow needed for fish passage. The project does not permit or entitle DCID to take and use more water than it does now pursuant to the 1920s court actions. The project would not result in the construction of or the expansion of existing wastewater facilities that could cause adverse environmental impacts. Evaluation of impacts associated with the construction of groundwater wells are evaluated throughout this Initial Study; mitigation measures have been identified that reduce potential impacts to less than significant.

- c) *No Impact.* The project would not result in the construction or expansion of stormwater drainage facilities. Since no impact can be identified, no mitigation is required.
- d) *No Impact.* Implementation of the proposed project would be conducted within the existing DCID water entitlements. The project would enable DCID to pump groundwater to replace the amounts of surface water bypassed for fish passage. DCID cannot use the groundwater wells to provide a greater or additional amount of water to its landowners. Since no impact can be identified, no mitigation is required.
- e) *No Impact.* The project would not result in the construction or expansion of wastewater treatment facilities and would not exceed wastewater treatment requirements. Therefore there is no potential to adversely impact a wastewater facility. Since no impact can be identified, no mitigation is required.
- f-g) *No Impact.* The proposed project includes the construction and installation of two groundwater wells and associated facilities. The project would not generate solid waste, except for minor amounts associated with well construction materials. Since no impact can be identified, no mitigation is required.

18. MANDATORY FINDINGS OF SIGNIFICANCE:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a) Based upon the success of the Deer Creek Water Exchange Pilot Program, DCID is proposing the implementation of a flow enhancement program as detailed in the 10-year Memorandum of Agreement (Agreement) between DCID, DWR and DFG (Appendix A). The Deer Creek Flow Enhancement Program (DCFEP) would be implemented in two Phases. Phase One is the proposed project and is the subject of this CEQA analysis. Phase Two would be initiated after the establishment of baseline conditions (as part of Phase One) as well as the completion of other DCID water use efficiency programs. Phase Two would be subject to its own CEQA evaluation and documentation.

Phase One of the Deer Creek Flow Enhancement Project

Phase One consists of the following components which are the subject of this CEQA analysis:

- Bypassing surface water from Deer Creek
- Installation of two water supply wells or retrofit of two existing wells for irrigation purposes
- Deer Creek Annual Monitoring Program (DCAMP)

Phase One includes the installation and operation of up to two new agricultural water supply wells or the retrofitting and leasing of up to two existing agricultural wells to create a base flow capacity of approximately 10 cfs of groundwater to be used in exchange for surface water bypassed by DCID. The Phase One base flow capacity of 10 cfs would be used as an instantaneous exchange of an equal amount of Deer Creek bypass flow provided by DCID (DWR/DFG 2006). Phase One includes Program-related operations, maintenance, permitting, and monitoring as well as annual baseline monitoring associated with the DCAMP. The DCAMP includes baseline surface water monitoring, temperature monitoring, identification of critical channel morphology impediments, groundwater monitoring, and fisheries monitoring. The DCAMP would provide the resource agencies with baseline data for the assessment of fish movement timing and documentation of annual surface water diversions. Components of the DCAMP include the Groundwater Monitoring and Management Guidelines (Guidelines) and the Deer Creek Fish Passage Assessment Plan.

Also included as part of Phase One is the bypass of pulse flows. Pulse flows are the amount of surface water bypassed by DCID that exceeds the base flow of 10 cfs. Pulse flows would be used for fish transportation during critical times and would only be made available upon mutual consent of DCID, DWR and DFG.

Water pumped by the new wells to replace bypassed surface water will not be transferred for export outside of the Deer Creek watershed per the Tehama County Ordinance No. 1617, Groundwater Extraction and Off-Parcel Use Permit (Appendix B). Water that remains in-stream under the proposed project would be solely for the purpose of preserving or enhancing anadromous fish and wildlife resources.

Ultimately, the proposed project would alleviate, in part, impediments to salmonid migration by enabling DCID bypass surface water, yet still make its water deliveries to its landowners and agricultural land uses.

According to the OCAP-BA, the DCFEP could result in adverse effects to only a fraction of listed species populations and 2008 Amendment conservation actions would not jeopardize the continued existence of listed species. It is expected that the project will implement the BMPs described in the OCAP-BA to avoid and minimize adverse effects to identified species. In addition, with regard to Essential Fish Habitat (EFH) Conservation Recommendations for Pacific Coast Salmon species, including spring-run Chinook salmon and steelhead, the NMFS Biological Opinion stated:

“DWR should continue to fund the Amended Delta Fish Agreement (Amendment) to mitigate, compensate for, and enhance habitat for anadromous salmonids in the Central Valley. Past actions under this agreement have improved upstream habitats and conditions for spring-run, fall-run, and steelhead and have contributed to the current status of the species. Ongoing actions identified in the Amendment should be continued, if the benefits of past actions are to be maintained. NMFS expects that this Amendment will also support implementation of actions specified in this RPA, such as re-introduction of winter-run to Battle Creek and habitat improvements at the Yolo Bypass, Liberty Island and other areas.”

As stated previously, the 2008 Amendment mitigation actions identified as “conservation actions” in the OCAP-BA include the proposed Deer Creek Flow Enhancement Project (DCFEP), an ongoing annual conservation action.

The overall DCFEP, including the proposed project, would improve access for spring-run Chinook salmon and steelhead to and from approximately 25 miles of Deer Creek upstream from the Stanford Vina Diversion Dam. The main components of the program include the development of supplemental water supply, implementation of agricultural water use efficiency improvements (not part of the proposed project) and the incorporation of groundwater monitoring and fish passage assessment monitoring. The OCAP-BA, and subsequent NMFS Opinion, considers these actions to be beneficial to the recovery of spring-run Chinook salmon and steelhead. While the OCAP-BA acknowledges that there may be short-term adverse effects as a result of physical disturbance, noise, sedimentation, and accidental spills, the net effect of the DCFEP will be overwhelming improvements to habitat conditions. BMPs identified in the OCAP-BA as well as mitigation measures identified in this CEQA document minimize and reduce potential impacts to less than significant levels. The proposed project would have a beneficial impact to anadromous fish species and would potentially increase population levels.

Although unlikely, there is the possibility that cultural resources could be located in the subsurface and project-related construction activities associated with the drilling and installation of wells could result in impacts to undiscovered or unrecorded cultural resource sites. **Mitigation Measures MM 5-1 and MM 5-2** identified in Section 5, Cultural Resources, reduce potential impacts to less than significant levels.

- b) Conjunctive water management projects have become increasingly important to improve water supply reliability in the region. According to the Sacramento Valley Integrated Regional Water Management Plan several conjunctive water management projects are either underway or in the process of being proposed or implemented. These projects include groundwater monitoring/assessment projects, groundwater production projects, and groundwater recharge projects.

DCID is a signatory to the Tehama County AB 3030 Groundwater Management Plan, which is administered by the Tehama County Flood Control and Water Conservation District

(TCFCWCD). The TCFCWCD has established a Technical Advisory Committee (TAC) that serves as an advisory body to the TCFCWCD Board. The Board and TC hold monthly meetings to implement the AB 3030 plan and to develop policy on local groundwater management issues. Tehama County also administers several groundwater-related Ordinances. Chapter 9.4, "Aquifer Protection," of the Tehama County Code incorporates County Ordinance No. 1617, which requires a permit to extract groundwater for the purpose of using the water for use on lands other than the parcel from which the extraction occurs. For this project, DCID would be required to obtain a Groundwater Extraction Permit for Off-Parcel Use, which is administered by the Tehama County Health Agency, Environmental Health Division (EHD).

Operation, monitoring and reporting of the proposed project's groundwater pumping would be coordinated with the Tehama County EHD. Secondary coordination at the County level would be through the AB 3030 TAC, via the TCFCWCD. At the local level, coordination will be through the DCID Board, the Deer Creek Watershed Conservancy, and through stakeholder meetings associated with ongoing program operations (DWR, 2007).

One of the key criteria for program operations is maintaining a predetermined range of acceptable groundwater levels surrounding the program-related production wells. The acceptable range of groundwater level fluctuation during program operations was established based on historic groundwater level data and the estimated worst-case decline in groundwater levels with previous test-production well pumping. The predetermined range of acceptable groundwater level fluctuation will be reviewed by the WAC and included as part of the Tehama County Groundwater Extraction Permit. Operation of the program production wells will proceed as long as there is compliance with the pre-agreed groundwater level criteria.

The DWR would be responsible for monitoring groundwater levels during the Deer Creek Flow Enhancement Program. Groundwater monitoring would include a regional County-wide grid, a regional Deer Creek monitoring grid, and a local Key Well grid. Tehama County typically also measures summer groundwater levels in portions of the regional County-wide grid (DWR, 2007).

The groundwater level monitoring location, timing, data reporting, acceptable range of fluctuation during program operations, and procedures for noncompliance determination, evaluation and program shutdown are presented in Section 8, Hydrology and Water Quality and implemented through **Mitigation Measure MM9-1**. Implementation of the Groundwater Monitoring Program and **MM 9-1** would reduce potentially significant cumulative hydrology and water quality impacts to a less than significant level.

It should be noted that the purpose of a cumulative impacts analysis is to "assess cumulative damage as a whole greater than the sum of its parts" (*Environmental Protection Information Center v. Johnson* (1st Dist. 1985) 170 Cal. App. 3d 604, 625 [216 Cal. Rptr. 502]).

Past, present and probable future projects within the Deer Creek area include: DCID Water-Use Efficiency Project/Near-Term Improvements; Cone-Kimball Fish Ladder Installation Project; potential projects identified by the Habitat Expansion Agreement; other habitat and resource enhancement projects; Sacramento River Bank Protection Projects on Deer Creek; and the Lower Tuscan Aquifer Monitoring, Recharge, and Data Management Project being conducted by the Butte County Department of Resource and Water Conservation. A summary of these projects is provided below.

Phase Two of the Agreement would include water use efficiency programs, including improvements to the DCID water delivery system, i.e., lining irrigation ditches, thereby reducing

the amount of water loss. These improvements could potentially allow for additional water flows to be made available for Phase One/bypassed flows. Specific DCID Water-Use Efficiency Project/Near-Term Improvements consist of replacement of the northernmost bolt-on slide gate at the DCID Main Diversion, replacement of the diversion structure at the Main Canal Wye that divides flow between the North Main and South Main canals, and replacement of the North Main upper spill structure.

The Cone-Kimball Fish Ladder Installation Project included the construction of a pool and weir type fish ladder on the privately owned Cone-Kimball diversion dam structure located on a side-channel of Deer Creek to allow fish passage during irrigation periods, and modifies the existing dam apron to improve fish passage during non-irrigation periods.

The Habitat Expansion Agreement (HEA), signed by nine parties including hydropower licensees, agencies, and organizations, and an individual, seeks to expand spawning, rearing, and adult holding habitat for Central Valley spring-run Chinook salmon and California Central Valley steelhead in the Sacramento River Basin. In 2009, the HEA identified a list of “Potential Habitat Expansion Actions” for Deer Creek, which included the proposed project. Other potential projects include: provide functional fish ladder at Lower Deer Creek falls, implement a water exchange agreement with DCID and SVID and dedicate fish passage flows, improve fish passage at Stanford-Vina Dam, install fish passage facilities at diversions that currently do not meet passage criteria, and study feasibility of consolidating diversion points to minimize the number of diversions on Deer Creek. These projects would be subject to CEQA.

Other habitat and resource enhancement projects within the Deer Creek region include Deer Creek Floodplain Feasibility Studies, various fish passage projects, riparian habitat restoration projects and conservation easements. In addition, the Northern Region DWR is also initiating the DCID Diversion Dam Alternatives Analysis to address fish passage improvements.

The implementation of these projects would result in cumulatively beneficial effects to biological and natural resources, and specifically spring-run Chinook salmon and California Central Valley steelhead.

The Army Corps of Engineers (ACOE) has also initiated implementation of Phase II of Sacramento River Bank Protection Project, which includes bank protection measures on ACOE 25 levee sites to prevent ongoing streambank erosion. This includes one site on Deer Creek. A Draft Environmental Assessment/Initial Study for the Sacramento River Bank Protection Project was prepared in April 2009.

The Lower Tuscan Aquifer Monitoring, Recharge and Data Management Project is a scientific study to acquire a better understanding of the parameters of the Lower Tuscan Aquifer, including its source and recharge characteristics. Monitoring and data collection activities would occur on six stream reaches and the valley floor. Stream reaches include Mill Creek, Antelope Creek and Deer Creek in Tehama County, and Big Chico Creek, Butte Creek and Little Dry Creek in Butte County. Specific activities in the Deer Creek area would include soil infiltration testing, stream gauge monitoring, piezometer well installation for stream aquifer temperature gradient measurements and seepage meter tests, and aquifer performance testing using existing groundwater wells. The Draft Initial Study and Proposed Mitigated Negative Declaration was submitted to the State Clearinghouse in May 2010.

Implementation of mitigation measures identified throughout this document would reduce potential project impacts to less than significant levels thereby limiting the project’s incremental

contribution to cumulative impacts.

When considered with past, current and probably future projects, including the implementation of habitat improvement and restoration projects, the proposed project would result in cumulatively beneficial effects to biological and natural resources. Therefore in the context of CEQA, the proposed project does not result in “cumulatively considerable” impacts.

- c) As noted throughout the Initial Study, the proposed project would not have the potential to result in significant impacts, after mitigation and thus, would not have the potential to result in substantial adverse effects on human beings.

SECTION 4.0 REFERENCES

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SECTION 5.0
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Appendix A
Memorandum of Agreement

Appendix B
Tehama County Ordinance No. 1617

Appendix C
OCAP-BA Best Management Practices

Appendix D
Biological Resources Assessment

Addendum to the Biological Resources Assessment

Updated Table 1 - Biological Resources Assessment

